MODEL AIRPLANE NEWS

13th Year of Publication

SEPTEMBER 1941

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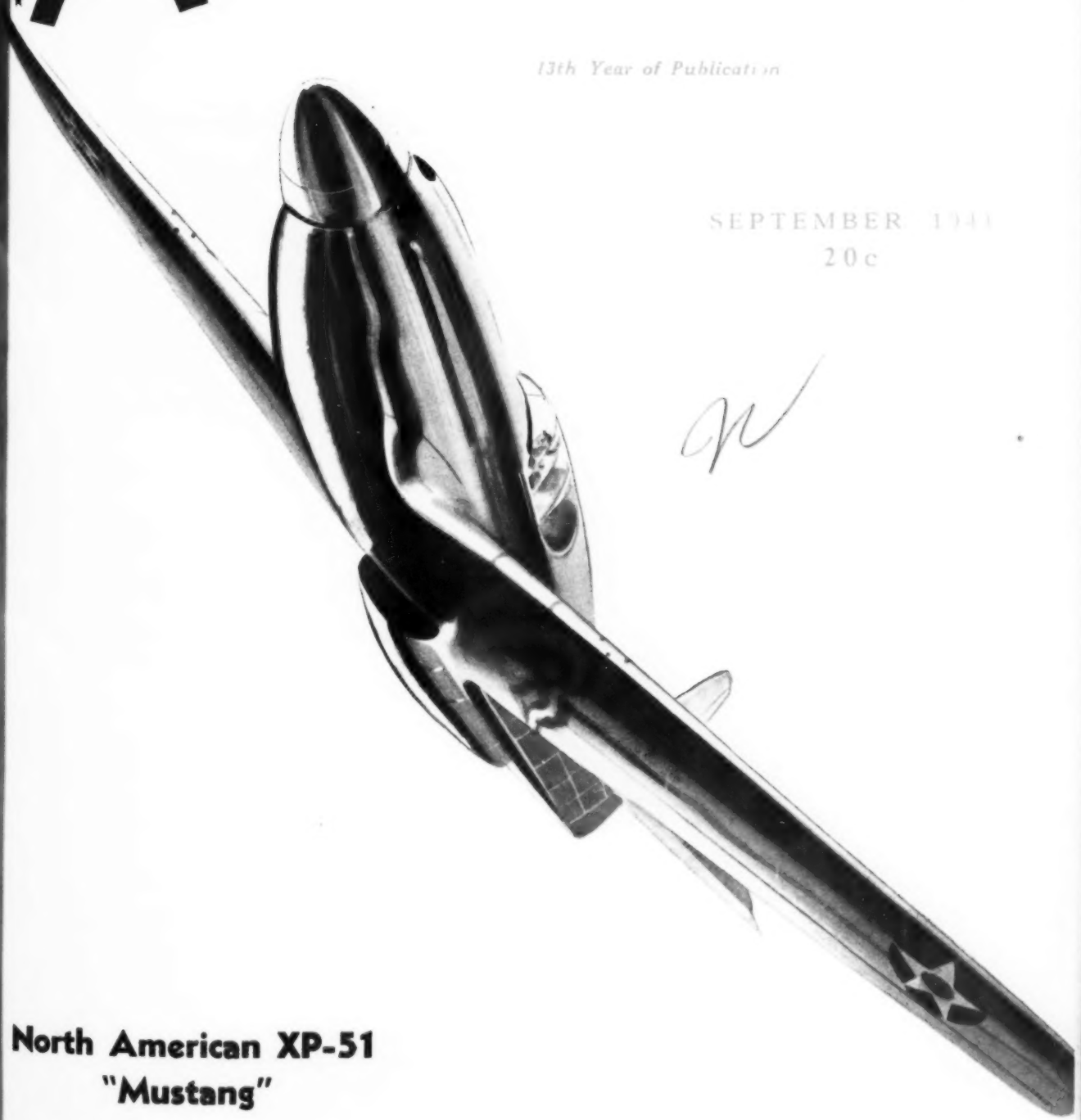

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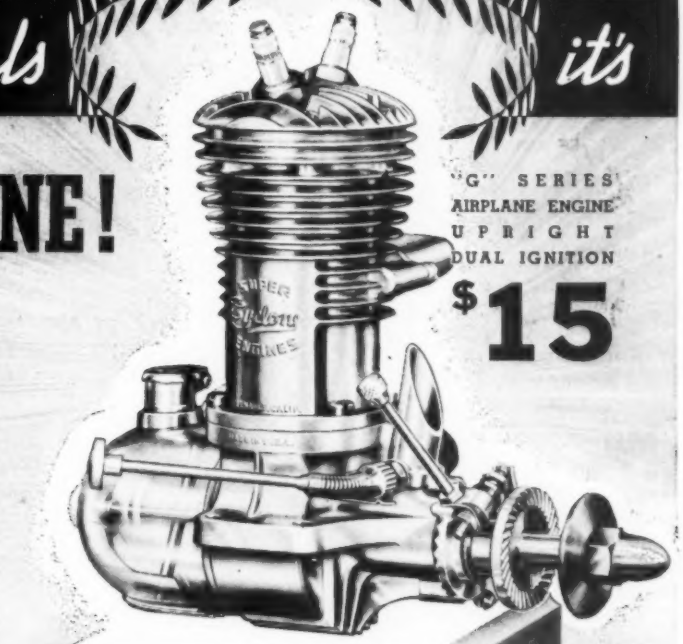

WE PUT Super-Cyclone on the spot. For months we've told you that the final test of an engine is its ability to deliver championship performance consistently when the "chips are down." Then came the National Championships and it was up to SUPER-CYCLONE to make good . . . and it came through with flying colors as the outstanding engine of the meet, being the only engine to win first place in both plane and race car competition. Jerry Brofman won first place in the Junior Class "C" Airplane Division. Ray Acord won the Pan-American Trophy for the longest flight of the meet (all classes and ages). Ken Clarke, with his Rexner "Zipper" scorched the rails by taking first in the quarter-mile at 71.03 MPH and also first in the mile from standing start. Bob Holloway, with his Dooling "Streamliner" won the quarter-mile cable title at 86.78 MPH. Perhaps of even greater interest to the model builder is the prize awarded to Casey Huston, whose SUPER-CYCLONE job was adjudged the most consistent performer in all events . . . and don't forget that SUPER-CYCLONE holds all the officially accepted high speed race car records. All of these achievements were made by individual private owners, using their own equipment . . . not with factory-owned jobs. Aircraft Industries Corp. wishes to congratulate these and the many other SUPER-CYCLONE owners for the remarkable showing they made in the Nationals. Compare these sensational performances with SUPER-CYCLONE'S equally sensational low price, made possible by our direct selling policy, and you can see why SUPER-CYCLONE IS THE WORLD'S GREATEST VALUE!

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Another SUPER-CYCLONE victory was scored in the New Mexico State Airplane Meet on June 15, where on a point scoring system, Howard Buevens took first and another SUPER-CYCLONE placed second in this mile-high event.

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ON THE BEAM

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THE AMBITIOUS INDIVIDUAL struggles constantly to extend the dominion of his mind, his dreams and his energy. A Diesel works a lifetime at the seemingly impossible task of harnessing heat in the combustion engine. A Lilienthal risks his precious neck daily in frail gliders to establish the theory of flight—and makes the supreme sacrifice in the attempt.

THE WRIGHTS, tiny specks on the vast sand reaches of Kitty Hawk, achieve glorious flight to bring mankind easily, safely, almost godlike to the farthest horizons.

BUT THESE ILLUSTRIOUS achievements have been filched and used for purposes their inventors never intended. They must be restored.

THE MODEL BUILDERS of today are the heirs to aviation of tomorrow. It is for them to recapture by courage and sacrifice the heritage of glorious, not destructive, flight—of individual initiative—of the right to extend the empire of the mind without restriction.

HERE, THEN, IS the domain of the model builder —it is as wide as the world.

The Editor

13TH YEAR OF PUBLICATION

MODEL AIRPLANE NEWS

SEPTEMBER, 1941 VOL. XXV, No. 3

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Edited by
Charles Hampson Grant

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Published monthly by Jay Publishing Corp., Mt. Morris, Illinois. Editorial and advertising offices: 551 Fifth Ave., New York, N.Y. George C. Johnson, President; Jay P. Cleveland, Advertising Manager. Entered as second class matter Dec. 6, 1934 at the post office at Mt. Morris, Ill., under the act of March 3, 1879. Additional entry at New York, N.Y. Price 20c per copy. Subscriptions $2 per year in the United States and possessions; also Canada, Cuba, Mexico, Panama and South America. All other countries $2.50 per year. *Copyright 1941 by Jay Publishing Corp.*

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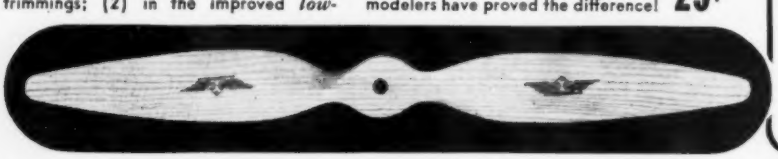

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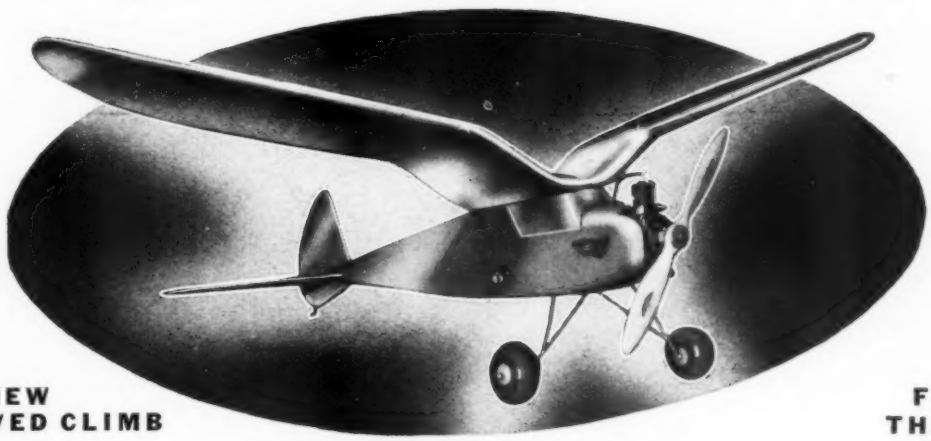

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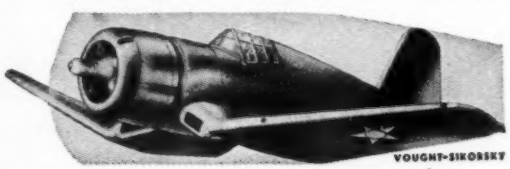

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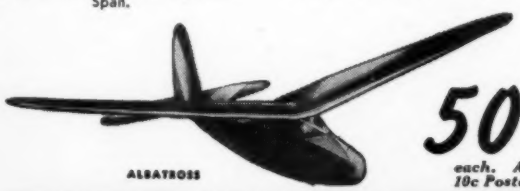

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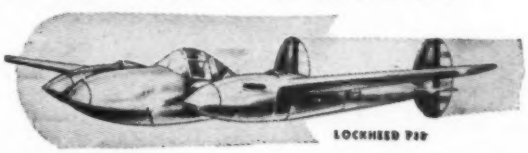

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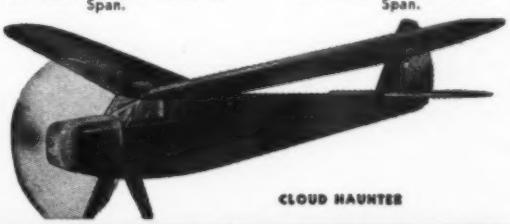

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A test flight before the big event

THE 1941

By AL G. DAVIS

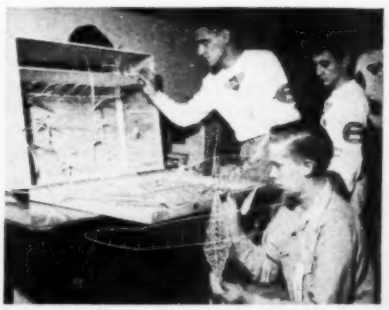
THE Greeks may have had a word for it, but without doubt the 1941 National Championship Model Airplane Contest held in Chicago was "TOPS" in anybody's language. Surpassing the highest standards of any meet ever held, 1,400 cheering contestants overflowed the banquet hall at the Sherman Hotel and hailed the new champion, Henry Struck of Jackson Heights, New York. Col. Roscoe Turner, Thompson Trophy winner, presented the National Exchange Clubs Trophy, and congratulated the new champion.

A first in the Flying Scale and a second in the Indoor Cabin tallied Henry 175 points. Tied for second place and individual honors were Stanley Stanwick, Pensacola, Florida, and Ray Beaumont of Philadelphia, Pa.; each with 150 points. Boston's Gordon Cain won a first in the Indoor Cabin Open to clinch the Fred W. Megow Team Trophy for his club, the Junior Aviation League.

Totaling 1,381 entries from 43 states, Mexico and Canada, the largest national meet set a record as the finest and most efficiently conducted model airplane con-

Contestants are warned to have their planes checked

Contestants from Va. work all night to put the finishing touches on their plane before the contest



Robert Sandberg and Harry Keshiskian remove their indoor planes from their carrying case

John Findra Jr., winner of Sr. Class A, receives the Comet Trophy from Louis Kapp

Stanley Stanwick, naval aviation cadet, "explains" to Miss Model Aviation, Ann Acker

Ray Beaumont with the Moffet Trophy. He won Cabin Event also

A view of the contestants in line waiting to have ships processed

Henry Struck receives the National Trophy

NATIONALS

The Dramatic Word and Picture Story of the 1941 National Model Plane Competition With Complete List of Winners

Pictures By HAROLD KULICK

test in the world. An estimated 100,000 spectators jammed the Park District Model Flying Field at 79th and Keeler Avenues and the International Amphitheatre at the Stock Yards to witness the indoor and outdoor events.

Much of the success of the 1941 Nationals was a result of the untiring effort of the arrangements committee of the Chicago Park District and the Chicago "Daily Times." The committee included Mr. F. E. Kardes, Craft Supervisor; Steve Meuris, Meet Manager; John Rappold, Contest Director; R. V. Pierce, Treasurer; Dan Penny, Banquet Director; Maurice Roddy and Russ Stewart, Publicity.

An important factor in the contest personnel's efficient operation was weeks of special group training of timers, recorders and processors. Increasing the manpower to 125 full-time park employees, in fourteen groups instead of the ten of last year, burdening of several processing tables was eliminated; each group was assigned to care for a specific age class and event.

Rigging crews were on hand each morning to set up administrative tents, string two miles of rope to hold back spectators and arrange the one hundred ten 4 ft. x 8 ft. runways in the fourteen pits, according to wind direction. The field maintenance crew prepared the outdoor site by mowing a million square feet of weeds, trimming stray trees and installing water and living facilities at the tent and trailer city.

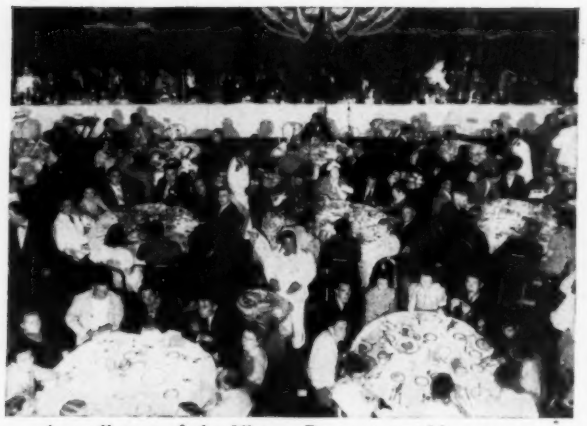
Otto Jelinek, traffic engineer, arranged convenient routes and had all roads leading to the field repaired, as well as prepared field parking facili-

Lost models, when found, were placed in wire baskets until claimed by their owners

A model retrieving scout scans the sky

The microfilm tank in Hotel Sherman workshop was in continual use the day before the indoor contest

Jim Bohash and his much-traveled, many-stickered indoor carrying case have attended many international events



A small part of the Victory Banquet; trophies at rear

The largest indoor contest ever held, in full swing

ties. Chief Roger Shanahan had several cars equipped with two-way radio, manned by squads of police. The Chicago Fire Department had on hand a squad to cope with any fires that might arise. Spectator benches were set up a short distance from the pits, to enable visitors to get a better view of the activities.

Weeks before the contest began twenty thousand booklets on entry instruction and procedure were distributed by the Park District, the "Times" Syndicate and

Bruno Marchi renews Academy licenses

Contestants receive their kits

The "Blurb" is hailed with wild acclaim

Ray Smith, Outdoor Stick Sr. winner, receives trophy from C. W. Rogers

Allan Vopel & Capt. DeLatereza, 1st and 2nd in the Berryloid Best-Finish Event

Walter Eggert, first Flying Scale Sr., receives Pesco Trophy

Dick Ellsworth and George Kapovich carefully unpack their radio control plane in the workshop

Bob Sandberg with Guillow and N.W. Airlines Trophies

At the contestants meeting paper model flights were prelude to main events

Messrs. Ohlsson & Rice present trophy to Phil Klintworth, winner in Class B Gas Event

Paul B. MacCready Jr. won trophies for Indoor Cabin and Stick

Stanley Stanwick from Pensacola starts cabin model on winning flight. He won stick event too

the Academy of Model Aeronautics. The purpose of distributing this information was to urge prospective entries to mail applications to contest headquarters, thereby enabling officials to prepare event and class assignment cards well in advance of activities.

On opening day hundreds of anxious contestants arrived, presented their paid-up Academy credentials and received an assignment envelope. This envelope contained contestant's number, bus and banquet tickets, rules and contest program. There was no waiting or unnecessary delays; if the entry was mailed, the material and kit was ready. Late entries were promptly handled.

Upon arriving at the field and referring to the assignment card, the entrant knew what pit he was designated to and lost no time getting there. At each pit the crew of trained park men processed the model and accompanied the model builder to the takeoff platform. Completing the flights the timing card was turned over to the recorder, who entered the flight on the master flight card. Arranged and totaled high time in numerical order, gave the recorder a complete record of the status of each entry. Thus, at the end of the day, but a few minutes were needed to compile results; by 8 P. M. results of the day's activity and winners were posted outside headquarters office, at the hotel.

As is customary each year, the Academy had its booth to register contestants and bring dues and licenses up to date; under the guidance of Bruno Marchi and Al Lewis, all difficulties were straightened out to the satisfaction of all.

On Thursday the annual meeting for new rule suggestions was held at the Academy Headquarters in the Sherman. Attending were members of the rules committee: A. L. Lewis, Bruno P. Marchi (fugitive from the draft), Phil Zecchitella, Jim Cahill, Irv Ohlsson and Frank Nekimken; as well as many contestants.

Among topics discussed was the suggestion by Ed Lidgard, Chicago, that the wing area in outdoor models be cut from 200 sq. in. to 150 sq. in. This, Lidgard stated, "would eliminate the possibility of interchanging or making slight changes to permit entry into fuselage, stick and tow-launch glider events." Representing the V.M.A., Dick Everett and Carl Hopkins, advocated the Academy's adoption of the West Virginia system for timing gas model flights. According to Everett, "The total flight in seconds is divided by the motor run, regardless of motor run." Continuing, he said, "If the flight were: 530 divided by a 20 second motor run, the number 26.5 would be the result. Naturally the highest number is declared winner."

Enthusiastic interest was aroused when a comment was made by a group of Chi-

Ray Acord won the Ritz Trophy for the Meet High Time

Ed Vargo admires his Class B Jr. Chicago Park District trophy

Stanley Stanwick and trophies he took home

Bill Effinger presents Dick Korda with Outdoor Cabin Trophy

Joe J. Lucas, 1st winner of Mulvihill Trophy 12 years ago, presents it to Ray Smith, '41 winner

Allan Vopel with his model which won Berryloid Trophy

Bill Gibson won Modelcraft and Gar Wood Trophies for both Class A and B Gas Open

Sal Taibi, winner Class C, receives Model Airplane News Trophy from Charles Grant

Gordon Cain and the Bloomingdale Trophy which he won for the second successive year

William Repenning won Champion Sparkplug Trophy for Class A Jr. Gas

cago modeleers to reduce the motor run to 15 seconds. Nineteen forty National's Director Frank Nekimken suggested metropolitan contests be conducted annually in larger cities throughout the nation to determine a local championship team. These eliminations, held through a 300-mile radius, would substantially reduce the number of National's contestants to the best groups in each class.

In an effort to stimulate the rubber model division, AMA Director Al Lewis suggested that "rubber vs. gas contests be conducted to prove that rubber model builders first are better gas model builders later." Slowly but surely, state academy directors are being placed directly responsible for activity supervision in their state. It is the Academy's hope that within the near future applications for sanctions be first considered by the state director, then submitted to Washington for final consideration.

Commenting on the lack in certain communities of Contest Directors, Mr. Lewis suggests that local AMA groups recommend qualified men of their own choosing for consideration by the Contest Board for appointment.

No definite action has been taken on rules discussed during this session, however all suggestions will be put to a vote later in the year.

It has also been suggested that in the outdoors and gas events the nine-flight possibility be eliminated, and the three-flight indoor rule be substituted. Flights of 21 seconds or over would be considered as a voided flight.

The most outstanding and most interesting event of the 1941 Nationals was the Radio Control Event; an all time high of 26 entries in this highly mechanized event brought forth some keen competition. Entering the event for the first time and "dark horse" throughout the entire meet,

(Continued on page 40)

Jim Walker, winner of Edward Roberts Trophy, receives congratulations from Mr. Roberts

Walter Brandle, Bud DeBolt and Charles Atkinson, winners of the Wheat Memorial Trophies

Ann Acker—Miss Model Aviation —from Birmingham, Ala.

Samuel Scuro receives the Guiberson Trophy from Mr. Harry Zane for the Outdoor Cabin Jr. Event

Pete Andrews from Langley Field with two of the trophies he won

METEOR ON WINGS

A Class A Gas Model That Looks Like a Full Scale Plane and Performs Like a Contest Ship

By SAL TAIBI

1941 NATIONAL WINNER

The little plane glides in with all the realism of a full scale craft

The plans show motor mount without down-thrust. It is suggested by the designer that three degrees down-thrust be used for best performance.

HERE it is at last, fellows; a model airplane that flies and glides like a contest model and yet looks like a *Real Plane*. It is an airplane that one will be proud to take to any contest — — — it has "fly-ability plus."

You may have owned models that had a good climb but we believe nothing can compare with the "Meteor." The original ship was flown with a Bantam engine, would zoom around the sky at about sixty miles an hour and when the motor cut out it was just a speck in the sky. The glide couldn't be beat, it seemed like it would never come down. The Meteor is a model that really wanted to defy the laws of gravity.

If you haven't built your contest model for this summer's flying and are trying to find something suitable, stop looking and get started on one of the finest designs we've ever flown! The "Meteor," a model designed by one of this country's leading aeronautical experts, Charles H. Grant.

Building and Flying the "Meteor"

Fuselage

Before attempting to build the Meteor the plans must be scaled to full size. It is only necessary to scale up the crutch on the fuselage as all other parts are given full size.

After the crutch is constructed, cut bulkheads 3, 4, 5, 6, 7, 8, 9, out of 1/8" sheet balsa and bulkheads 1, 2 and 4A from 1/16" plywood. Place them in their respective positions on the crutch and cement thoroughly. Allow to dry a while, then add top rear longeron which extends from bulkheads 6 to 8; the top cabin longerons are then added. Both the top longerons and crutch are constructed from 3/16" sq. The keel is then cut from 1/8" sheet balsa; two are needed as the keel is laminated, a balsa gusset cut from 1/4" sheet is glued to the firewall and keel.

The rear landing gear and shock absorbers are bent to shape and glued in place with 5/16" sq. grooved basswood, (See landing gear detail on plate I.) The fuselage is then covered with 1/16" sheet balsa; it is advisable to use three-inch widths for this purpose. The motor mount

In full flight at 60 m.p.h.

is then glued to the firewall, reinforced with 1/4" sheet gussets. A piece of 5/16" x 3/8" basswood is now glued beneath the gusset on B-2 and the crutch. (See nose detail on plate I.)

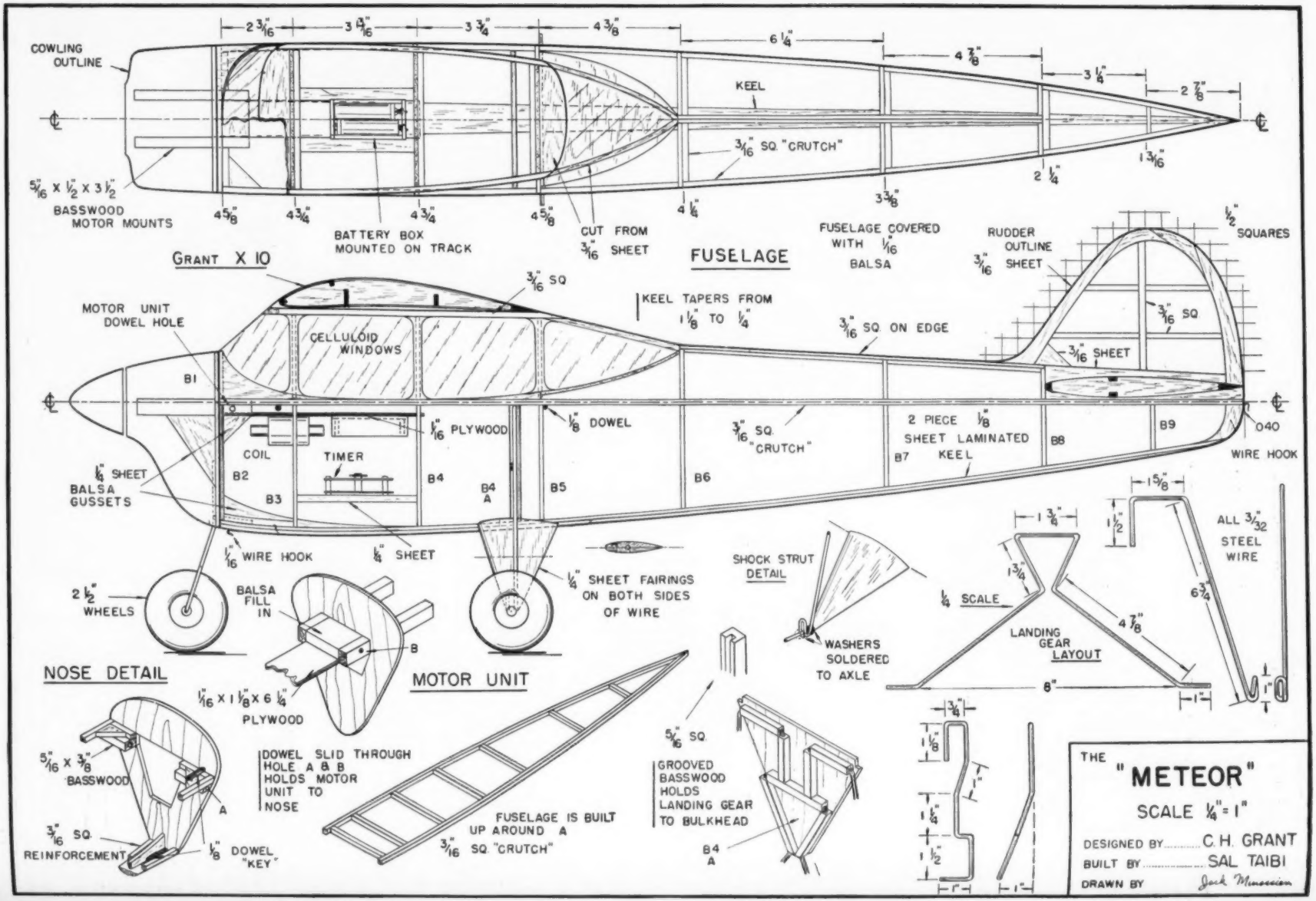
Drill a 1/8" hole at the top of B-2, at the thrust line and another at the bottom of B-2 right above the keel between the 1/4" sheet gusset and the 3/16" sq. reinforcement. A 1/8" dowel is firmly cemented into each hole and allowed to protrude about 1/8"; these serve to keep the removable nose unit from shifting; see nose detail on plate I. The removable nose unit is slipped into place and a 1/16" hole is drilled through section A and B; a 1/16" dowel is then slipped in, serving to hold the removable nose unit in place. The front landing gear is bent to shape and cemented in place with 5/16" sq. grooved basswood.

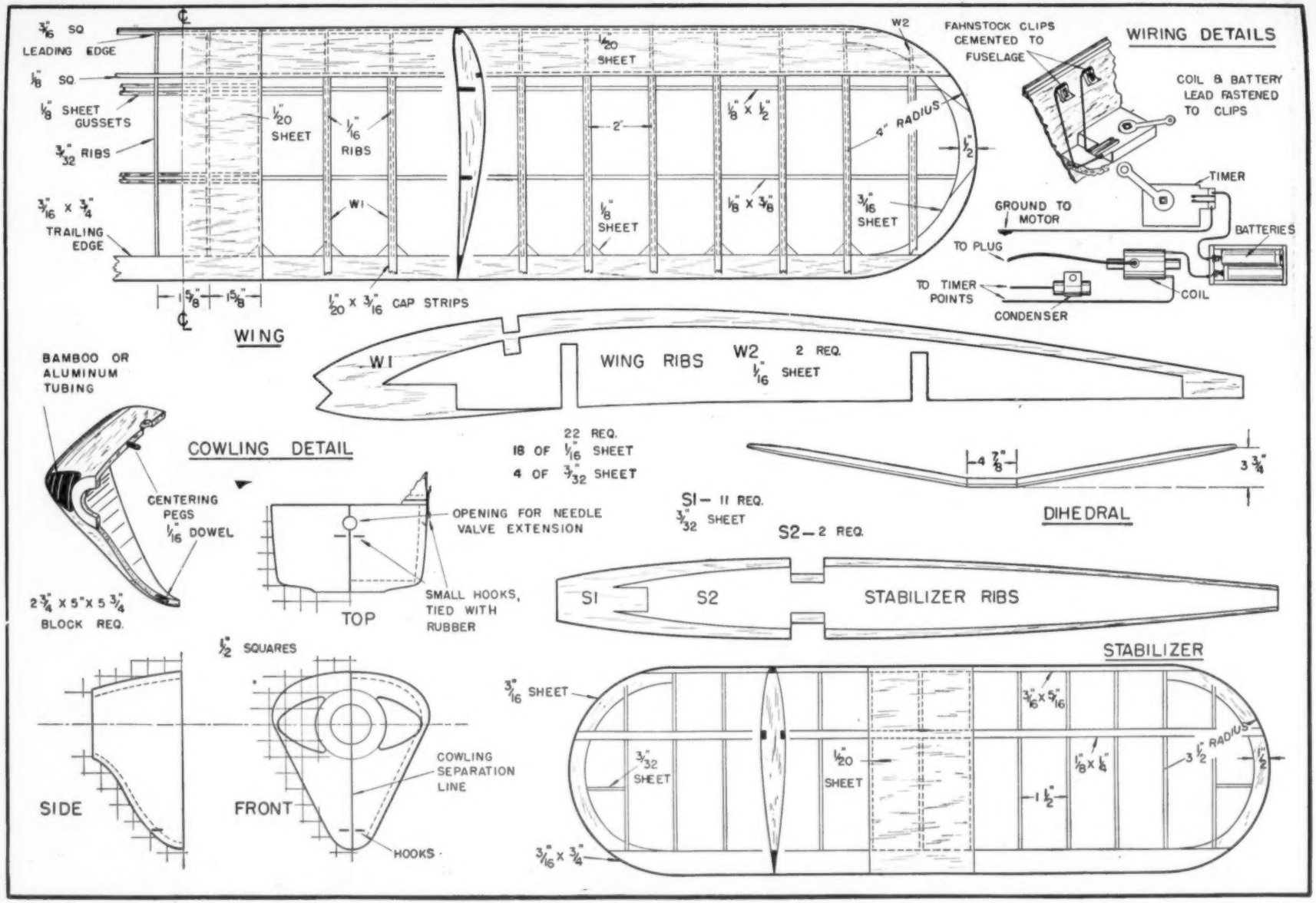
When the Meteor is assembled and ready to be flown, rubber is passed around the front landing gear and the wire hook on the bottom. A piece of plywood 1/16" x 1-1/8" x 6-1/4" serves as the ignition track, this is cemented in place below the 1/4" sheet filler at the motor mount rear; see motor unit detail on plate I. After this has dried the coil, condenser and batteries are wired as shown in the wiring diagram; you will note the ignition is mounted on bottom of the ignition track. If in doubt consult the plan side view. On the wiring detail you will notice the timer is fastened permanently into the fuselage; fasten it to a piece of 1/4" sheet, then glue the sheet balsa to the fuselage bottom.

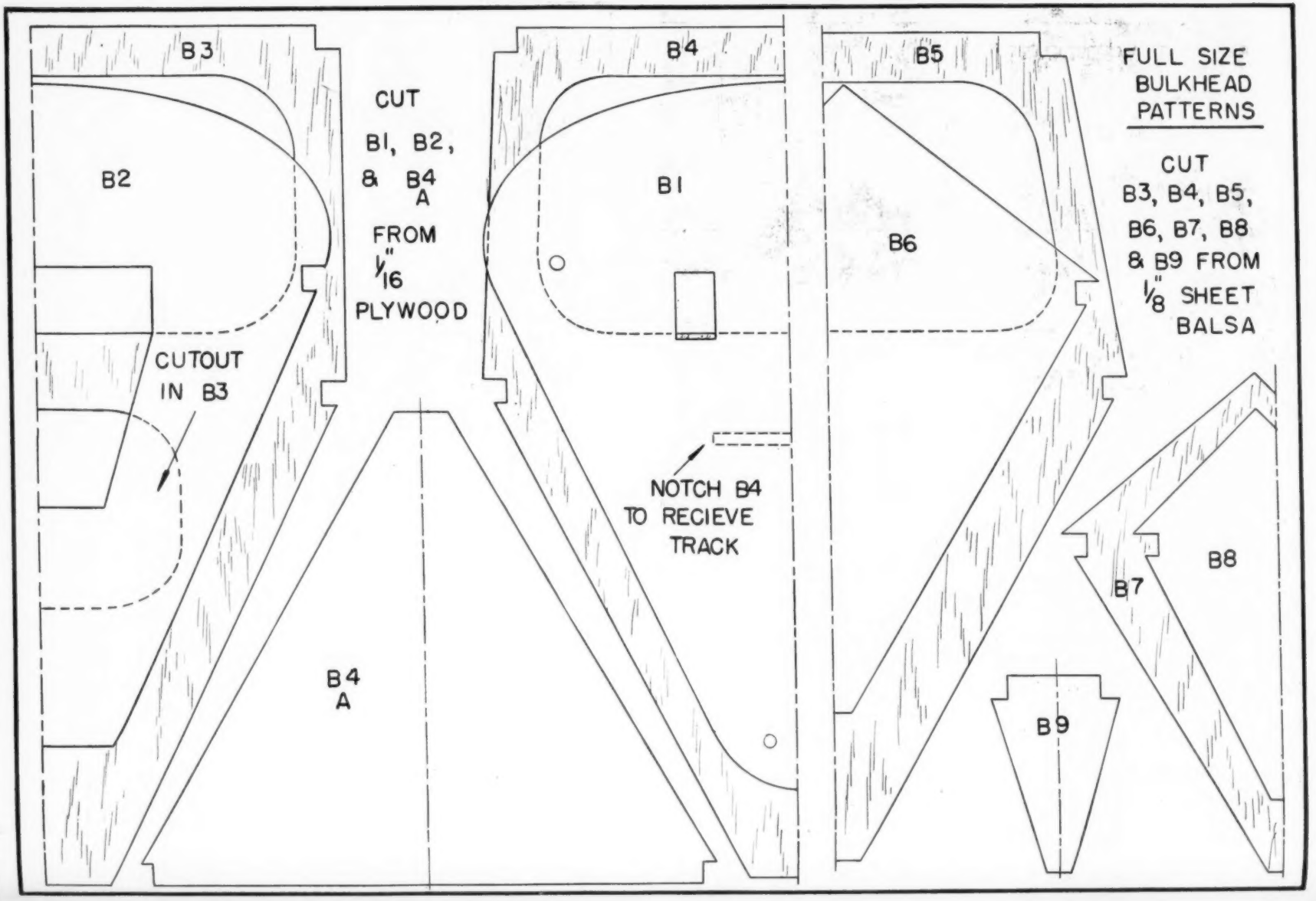
Now glue the Fahnstock clips to the

(Continued on page 58)

Though of scale proportions, it climbs at 45 degrees

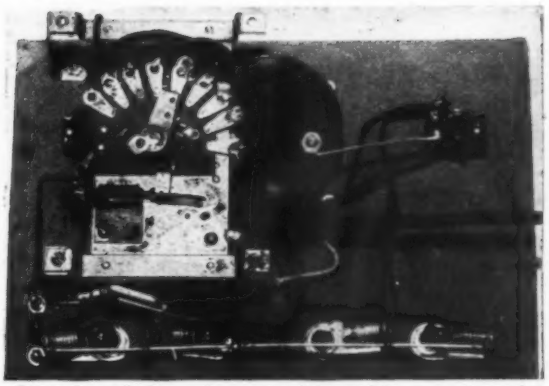

COWLING OUTLINE
KEEL
3/16" SQ. "CRUTCH"
5/16 X 1/2 X 3 1/2" BASSWOOD MOTOR MOUNTS
BATTERY BOX MOUNTED ON TRACK
CUT FROM 3/16" SHEET
FUSELAGE COVERED WITH 1/16" BALSA
RUDDER OUTLINE
1/2" SQUARES
3/16" SHEET
GRANT X 10
FUSELAGE
3/16" SQ
KEEL TAPERS FROM 1 1/8" TO 1/4"
3/16" SQ ON EDGE
MOTOR UNIT DOWEL HOLE
CELLULOID WINDOWS
B1
1/16" PLYWOOD
1/8" DOWEL
3/16" SQ. "CRUTCH"
2 PIECE 1/8" SHEET LAMINATED KEEL
B7
B8
B9
.040 WIRE HOOK
COIL
TIMER
B2
B3
B4
B4 A
B5
B6
1/4" SHEET BALSA GUSSETS
1/16" WIRE HOOK
1/4" SHEET
1/4" SHEET FAIRINGS ON BOTH SIDES OF WIRE
2 1/2" WHEELS
BALSA FILL IN
B
SHOCK STRUT DETAIL
WASHERS SOLDERED TO AXLE
1/4 SCALE
LANDING GEAR LAYOUT
ALL 3/32" STEEL WIRE
8"
NOSE DETAIL
5/16 X 3/8" BASSWOOD
A
3/16" SQ. REINFORCEMENT
1/8" DOWEL "KEY"
1/16 X 1 1/8" X 6 1/4" PLYWOOD
DOWEL SLID THROUGH HOLE A & B HOLDS MOTOR UNIT TO NOSE
MOTOR UNIT
FUSELAGE IS BUILT UP AROUND A
3/16" SQ. "CRUTCH"
5/16" SQ. GROOVED BASSWOOD HOLDS LANDING GEAR TO BULKHEAD
B4 A
THE "METEOR"
SCALE 1/4" = 1"
DESIGNED BY C. H. GRANT
BUILT BY SAL TAIBI
DRAWN BY Jack Minuccian


3/16 SQ. LEADING EDGE
1/8" SQ.
1/8" SHEET GUSSETS
3/32" RIBS
3/16" X 3/4" TRAILING EDGE
1/20 SHEET
1/16" RIBS
W1
1/20 SHEET
2"
1/8" SHEET
1/8" X 1/2"
1/8" X 3/8"
W2
4" RADIUS
1/2"
3/16" SHEET
1 5/8"
1 5/8"
1/20" X 3/16" CAP STRIPS
WING
WIRING DETAILS
FAHNSTOCK CLIPS CEMENTED TO FUSELAGE
COIL & BATTERY LEAD FASTENED TO CLIPS
TIMER
GROUND TO MOTOR
BATTERIES
TO PLUG
TO TIMER POINTS
COIL
CONDENSER
W1
WING RIBS
W2 2 REQ. 1/16" SHEET
BAMBOO OR ALUMINUM TUBING
COWLING DETAIL
CENTERING PEGS 1/16" DOWEL
2 3/4" X 5" X 5 3/4" BLOCK REQ.
OPENING FOR NEEDLE VALVE EXTENSION
TOP
SMALL HOOKS, TIED WITH RUBBER
22 REQ.
18 OF 1/16" SHEET
4 OF 3/32" SHEET
4 7/8"
3 3/4"
DIHEDRAL
S1 — 11 REQ. 3/32" SHEET
S2 — 2 REQ.
S1
S2
STABILIZER RIBS
STABILIZER
1/2" SQUARES
SIDE
FRONT
COWLING SEPARATION LINE
HOOKS
3/16" SHEET
3/32" SHEET
1/20" SHEET
3/16" X 5/16"
1 1/2"
1/8" X 1/4"
3 1/2" RADIUS
1/2"
3/16" X 3/4"


B3
B2
CUT
B1, B2,
& B4A
FROM
1/16"
PLYWOOD
CUTOUT
IN B3
B4
B1
NOTCH B4
TO RECIEVE
TRACK
B4A
B5
B6
FULL SIZE
BULKHEAD
PATTERNS
CUT
B3, B4, B5,
B6, B7, B8
& B9 FROM
1/8" SHEET
BALSA
B7
B8
B9

REMOTE Radio Control

An Outline of a Complete Radio Control System for Model Planes



Rear view of electronic type conjulator. Note stepping relay made from pinball machine relay

By LEON HILLMAN

"AA FLIGHT nine calling Dayton .... Calling Dayton .... Come in please" - - - Constantly the air waves are filled with such communications from pilots contacting remote points. Dialing to another radio band, we hear continually repeated code signals—the radio beam to guide pilots flying "blind." Radio with its important role in aviation today has required pilots to familiarize themselves with operation of this equipment.

Now in the model airplane field improvement of radio control apparatus has made it possible to increase the scope of model flying. Movable surfaces, variable speed and long distance flying are all possible by addition of this equipment. Of course this makes the requirements for models more exacting since they approach actual flying conditions; now the progressive, scientifically inclined builder must acquaint himself with radio equipment, just as it is necessary for pilots to do. Operation of an aircraft transmitter by a pilot requires that he be licensed by the Federal Communications Commission, and so, too, operation of a radio transmitter to control a model requires a license issued by the same Commission. There will be more about licenses later.

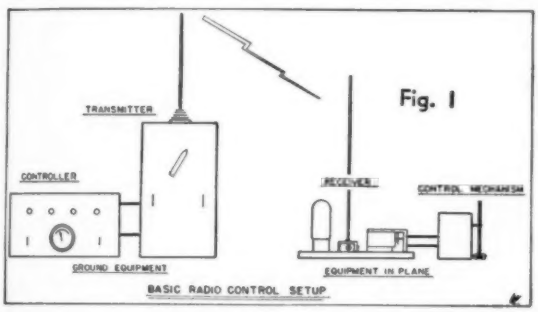


Fig. 1

BASIC RADIO CONTROL SETUP

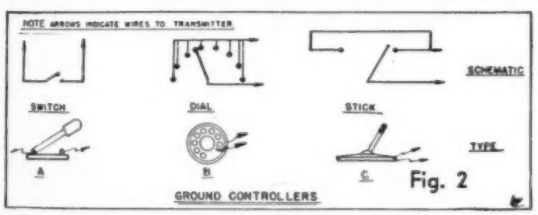
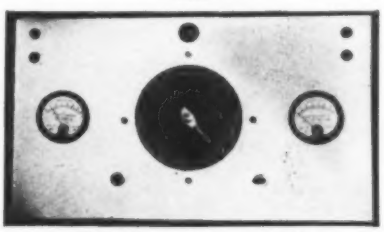


Fig. 2

GROUND CONTROLLERS

The principle of radio control is easily understood: A radio signal is radiated into the ether by a radio transmitter on the ground. A sensitive receiving system in the plane intercepts this signal and converts it from electrical to mechanical energy, then performing the desired control action.

Electronic type conjulator ground control unit



Manual conjulator panel

The transmitter is connected to an operating control enabling the ground pilot to send the required number of transmissions, thus getting the desired control to act. Figure 1 shows how the equipment is arranged. Starting from ground controller and trans-

(Continued on page 62)

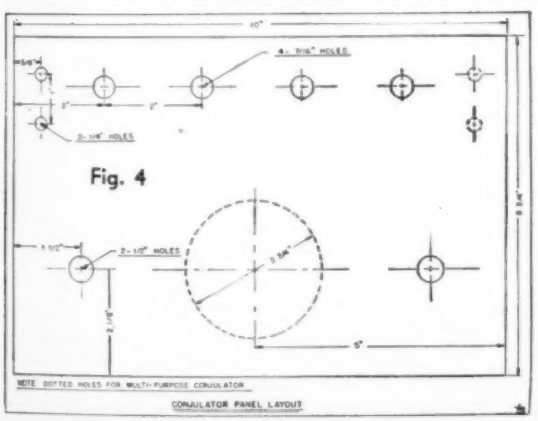


Fig. 4

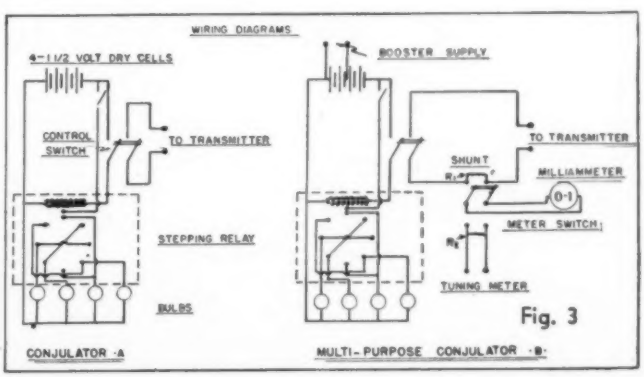
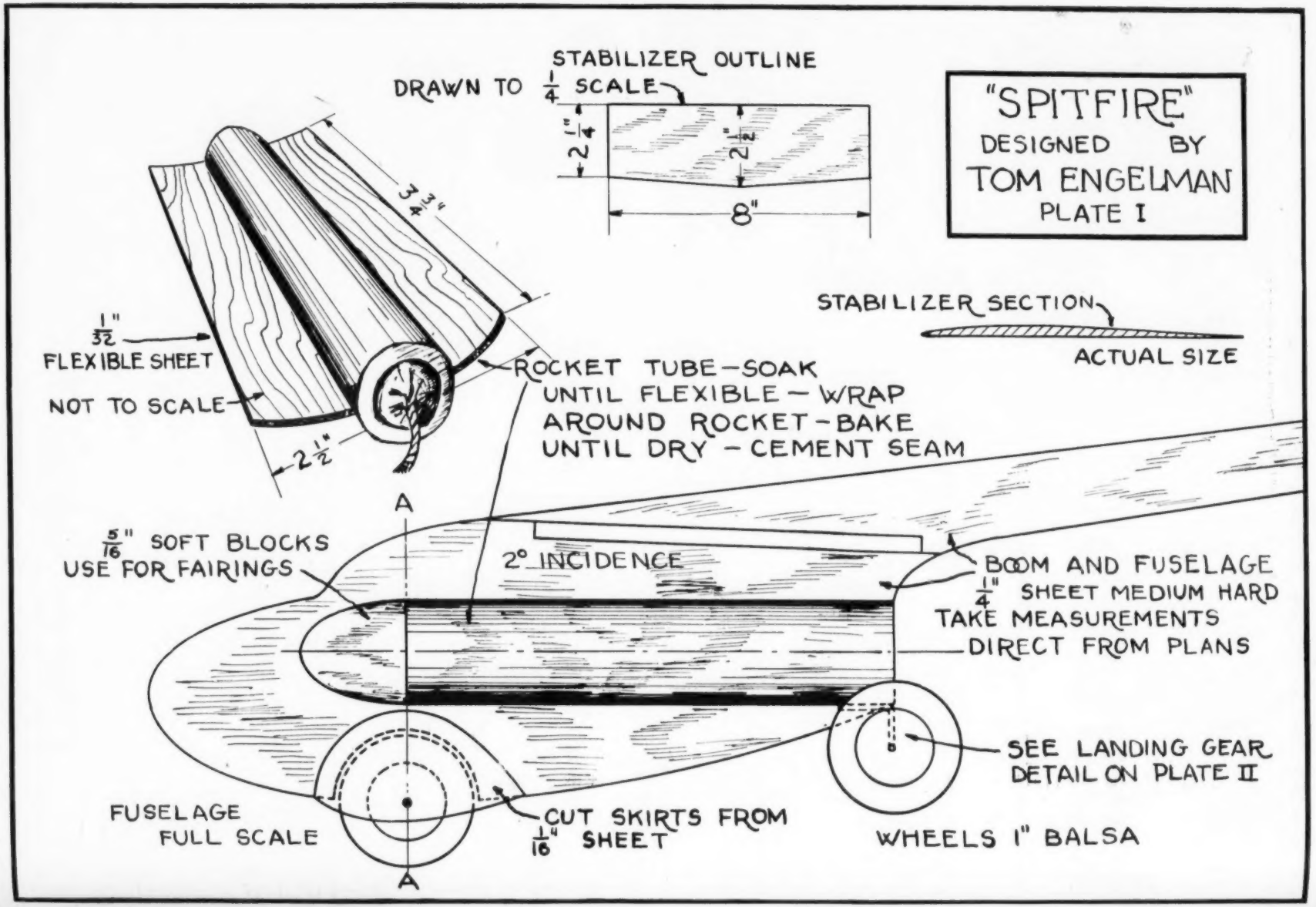
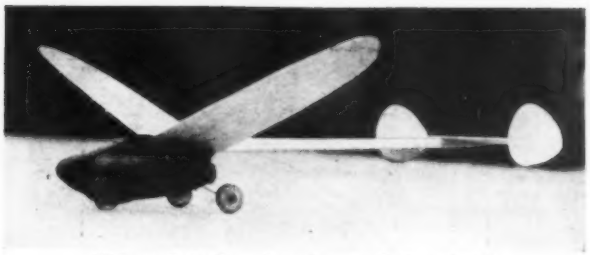


Fig. 3


"SPITFIRE"
DESIGNED BY
TOM ENGELMAN
PLATE I
STABILIZER OUTLINE
DRAWN TO 1/4 SCALE
2 1/4"
2 1/2"
8"
STABILIZER SECTION
ACTUAL SIZE
3 3/4"
1/32" FLEXIBLE SHEET
NOT TO SCALE
2 1/2"
ROCKET TUBE – SOAK UNTIL FLEXIBLE – WRAP AROUND ROCKET – BAKE UNTIL DRY – CEMENT SEAM
A
5/16" SOFT BLOCKS USE FOR FAIRINGS
2° INCIDENCE
BOOM AND FUSELAGE 1/4" SHEET MEDIUM HARD
TAKE MEASUREMENTS DIRECT FROM PLANS
SEE LANDING GEAR DETAIL ON PLATE II
FUSELAGE FULL SCALE
CUT SKIRTS FROM 1/16" SHEET
WHEELS 1" BALSA
A

Building THE ROCKETEER

A Rocket Plane That Gives Consistent Thrilling Flights—Here You Have Complete Building Instructions



This easily built rocket plane ready for takeoff

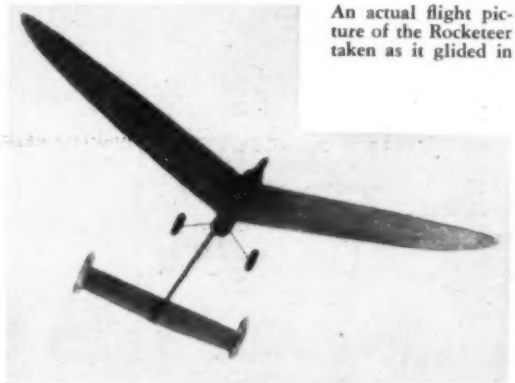
By TOM ENGELMAN

THOSE of you who think you have seen real performance in some 300-square-inch, quarter-horse gas job just sit back and hold tight—"You haven't seen anything yet!!"

The "Spitfire" is the fifth of a series of experimental rocket ships and has proved itself a sensational and dependable performer. Powered with five- or ten-cent-store two-ounce rockets, it climbs to an altitude of 150 feet, turning in flights of over one minute.

After ignition of the rocket, the ship pauses on the runway for about four seconds and then WHOOOOOSH!! Your next glimpse of the model is as it starts its flat spiral glide high overhead.

Novice or champion will find this unusual performer a worthy addition to his model collection. The wing loading of "only" 5.97 ounces per square foot insures the builder his share of thrills and "gray hairs."



An actual flight picture of the Rocketeer taken as it glided in

Construction

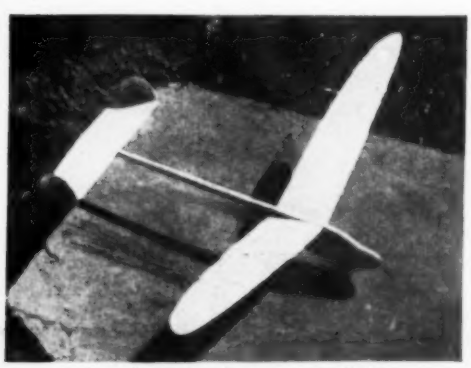
The rocket plane's general construction is very similar to that of a hand-launched glider. Special care should be taken to insure strong joints and precision alignment as at the high speeds at which the little ship flies a structural failure or a slight error in rigging is apt to cause some fancy cavorting.

Fuselage

The fuselage is built in two parts; boom and pod. Cut the boom from 1/4" medium hard sheet balsa and sand to a symmetrical streamline section. The pod is cut from the same stock. Cut out the section where the rocket tube and wheel will fit. Form the rocket tube by soaking a piece of 1/32" sheet, cut to proper size, in water until flexible and then wrap it around a 3/4" dowel or a two-ounce rocket.

Hold in place with strips of cloth and bake until dry. As soon as the tube is thoroughly dry cement the seam and secure the tube to the pod. In order to insure strength make sure the seam on the tube comes at one of the junctions of the tube with the pod. Fair the front of the tube to the pod, with soft balsa blocks. Cut the skirts for the front wheel; install the nosewheel and sand the skirts until they fair into the pod. Round off the pod corners until it has a streamline section. Bend the landing gear strut from .028 gauge music wire and secure to the fuselage. Solder or cement small washers to the inside of the axles to prevent the wheels from climbing the struts. Bush each wheel by cementing washers to both sides; secure the wheels by gluing a small washer to the end of the axle. Carefully cement the boom to the pod; sand the completed fuselage and finish with two coats of glider polish.

The author with his Rocketeer



Spouting fire as it starts on a flight

Wing and Tail Surfaces

The wing is a double ellipse planform. If you are not familiar with one, the method for plotting a double ellipse is:

Mark the scale wing plan off in 1/8" squares; then enlarge to proper size. Make the wing in halves, from 1/8" medium hard sheet and cut to the specified section. Sand and finish with two coats of glider polish.

Cut the stabilizer from medium soft 3/32" sheet and sand to the sections shown on the plans. Cement the rudders to the stabilizer, making sure they meet at right angles. Sand and give two coats of glider polish.

Assembly

Set the fuselage in some sort of a jig so that it stands perpendicular to the table. Block up the tail surfaces to their relative position; apply cement freely and secure the tails to the fuselage. Coat wing roots with glue and fasten to the fuselage at the location shown on the plans. Block up the wing tips to make sure that the wing will have the proper amount of dihedral when dry. When the glue is dry remove the wing from the jig and completely cover the wing and tail junctions with cement; return to the jig until the glue again sets.

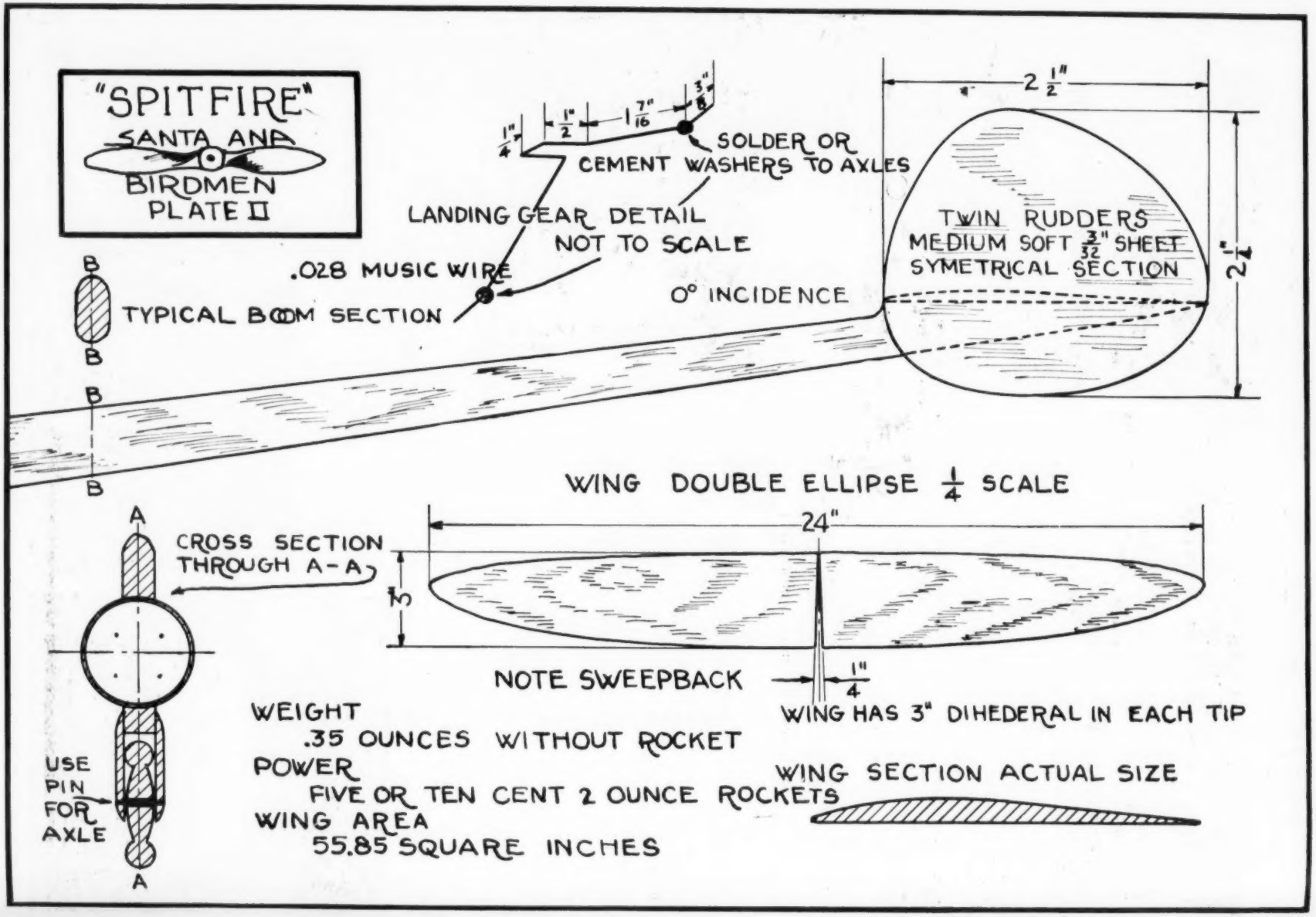
Paint the wing and fuselage joint twice more with cement, taking special care to see that the wing retains its correct dihedral. The rocket ship as a complete unit should be sanded and given one coat of glider polish.

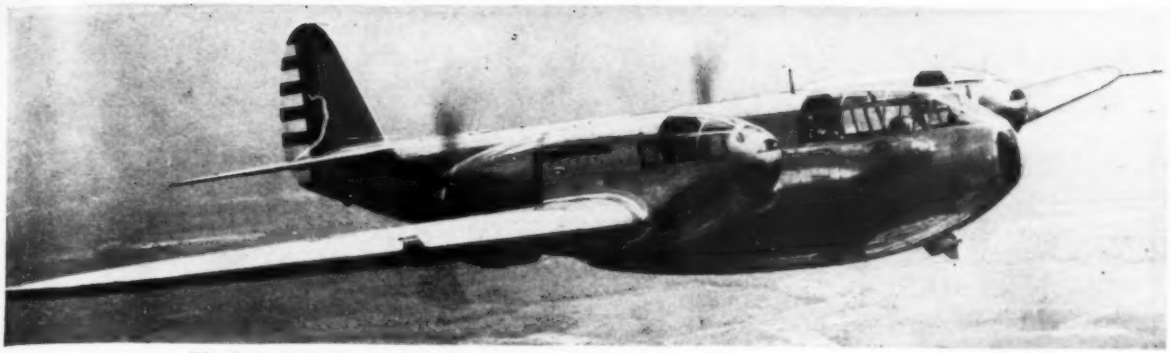
Although it will not improve the model's flying qualities, some form of trim will greatly enhance its appearance. Use your own discretion when decorating your craft; the original Spitfire had a flaming red pod set off by black and white wheels.

Flying

Spitfire is powered with ordinary five-and-ten-cent-store two-ounce sky-rockets

(Continued on page 60)


"SPITFIRE"
SANTA ANA
BIRDMEN
PLATE II
LANDING GEAR DETAIL
NOT TO SCALE
SOLDER OR
CEMENT WASHERS TO AXLES
.028 MUSIC WIRE
TYPICAL BOOM SECTION
0° INCIDENCE
TWIN RUDDERS
MEDIUM SOFT 3/32" SHEET
SYMETRICAL SECTION
WING DOUBLE ELLIPSE 1/4 SCALE
CROSS SECTION
THROUGH A-A
USE
PIN
FOR
AXLE
24"
NOTE SWEEPBACK
WING HAS 3" DIHEDERAL IN EACH TIP
WEIGHT
.35 OUNCES WITHOUT ROCKET
POWER
FIVE OR TEN CENT 2 OUNCE ROCKETS
WING AREA
55.85 SQUARE INCHES
WING SECTION ACTUAL SIZE



The latest Bell Airacuda. Five foot shafts have been developed to drive pusher propellers

FRONTIERS

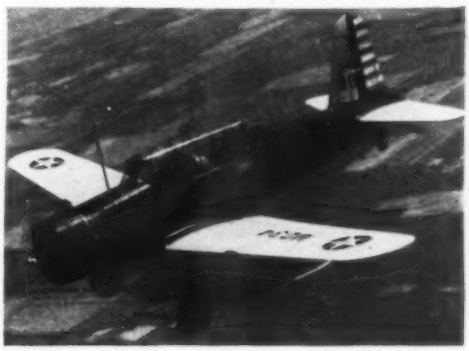
Highlights of Latest Aviation Developments in All Parts of the World

By ROBERT C. MORRISON

British "Beafort" torpedo bombers raiding enemy convoys, cause heavy losses along the French coast

THE airplane designer is now, more than ever, giving special attention to the heat ejection of high horsepower engines, to gain added speed in airplanes. Engineers have gained between 20 to 30 m.p.h. by the use of heat eminating from the engine. One means we have mentioned in the past is the jet propulsion principle applied to the exhaust manifold tail pipes. Another is the proper design of ducts around oil coolers and the like, so that the expanding heat ejected from the cooler's radiator will have a tendency to thrust the airplane forward as it shoots out the rear of the duct. When you begin getting up in the realms of 400 and 500 m.p.h. little items of that nature become very important. At 500 m.p.h. the efficiency of present propellers may not prove to be more than 20%, which is nothing to brag about.

We wonder if it would not be possible to design a laminar flow prop that would improve this condition at very high speeds? At these speeds, with such a noticeable drop in propeller efficiency, jet propulsion just begins to come into its own, and we wonder if, perhaps, we are not as far away from rocket ships as one might imagine!



The Vultee BT-13 basic trainer hundreds of which are now used by the U. S. Army

The new Fleetwings XBT-12, stainless steel trainer now being tested by the Army

We witnessed a demonstration of one of North American's XP-51 pursuits the other day and were very much satisfied the United States had a good foothold on the pursuit situation. The plane was "pushed" past 400 m.p.h. as it shot across the field, and our visions of speeds we saw at past National Air Races went up in a cloud of dust! The airplane was really on its way! The pilot pulled the plane up in a gradual zoom, and in no time at all it was on its back at about 3,000 feet, at the point of rolling out of an Immelman! The pilot then came down to do three barrel rolls, and no sooner was he able to wind her through the third roll than the ship passed out of sight. We might

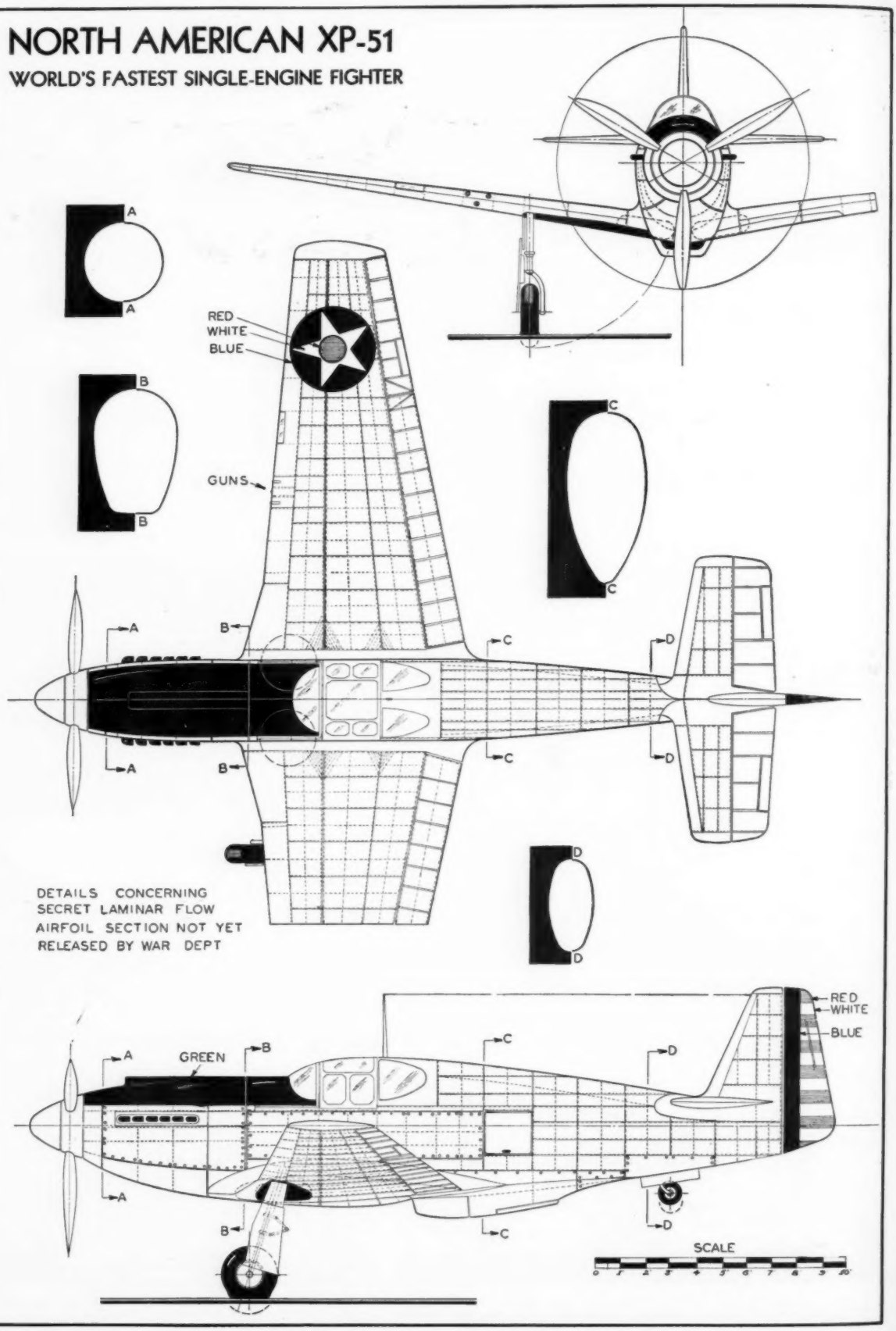
(Continued on page 62)

The new General Skyfarer GI-80 has no rudders. Turns are executed by banking and side slipping by means of the ailerons, like the Ercoupe

Here is the latest development in pursuit planes, the Bell YP-39C, tested recently

NORTH AMERICAN XP-51

WORLD'S FASTEST SINGLE-ENGINE FIGHTER



The Flying "MUSTANG"

The Plane On The Cover

By ROBERT McLARREN

The North American Aviation XP-51 single seat pursuit plane, one of the fastest in the world, powered with an Allison engine

THE science of aerodynamics is a lot like trying to put a baby to sleep: After hours of soothing talk, a portion of gentle patting and a tender tucking-in, the baby begins quietly to snooze. Then a door will slam, the baby will scream and you've got the whole works in a mess again. So it is with the job of designing an airfoil. The wind-tunnel will register everything perfect when suddenly the flow will start bouncing off into space and you've got the whole job to do over.

Take the job of controlling the boundary layer, that thin, little strata of air particles that stick to the wing skin surface and slowly moves rearward, its speed varying with the distances from the skin; the airfoil, entering normal, stagnant air in the skies, neatly parts it in half and the flow, particularly along the upper surface nicely follows the wing camber. Then, suddenly and for no apparent reason, it veers upward, slaps the flow above and the wing's entire upper surface, from this point rearwards, becomes a seething mass of what is known both colloquially and technically as burbles. This burbling destroys lift, increases drag and in general "raises Cain."

Therefore, obviously, some means of getting this flow into hand and making it do what you want, is the chief problem of aerodynamic research. And the N.A.C.A. has been at it for more than thirty years! This control presents a paradox: the faster you want your airplane to go the slower you permit airflow to travel. Sound, the fastest traveling thing known to man, depends on the actual movement of air particles for its passage. Therefore, the speed of sound (varying with air temperature is about 750 miles per hour) is the highest rate of speed at which one air particle can get out of the way of another. If something attempts to move them faster than this something has got to give and the air particle is the one; by compressing. And since the whole theory of aerodynamics is built around the incompressibility of air as a fluid, all our formulas, tables and charts go smash when this speed is reached and no longer holds true. At this writing nothing is known about the air behavior beyond this point; perhaps in a few years present research will discover something of the nature of air moving faster than the speed of sound, and perhaps, too, MODEL AIRPLANE NEWS will be able to present these amazing findings to you.

However, man HAS been able to establish some control over the air flow moving at less than this speed over an airfoil; the extent to which he has been able to do this is the extent to which Uncle Sam has surpassed the Luftwaffe in the speed of its new fighting planes.

The object of this control is to keep the flow close to the wing skin for as far back along its chord as possible. This the N.A.C.A. has done as far as practical and the new "laminar flow airfoil" recently developed keeps this flow under control almost to the trailing edge. Thus, this airfoil's speed has been increased 30 per cent by a reduction in drag of 67 per cent (the remaining 3 per cent being taken up in inefficiency).

Therefore, all other things being equal, a standard fighting plane substituting this airfoil for its present one would have a 30 per cent increase in speed. And couple with this a completely new fighter design with not only this new airfoil but an advanced design fuselage, powerplant, cooling and

(Continued on page 54)

AIR YOUTH OF AMERICA

News of Importance to Modelers

WHAT part will model aviation play in the expanding national defense program?

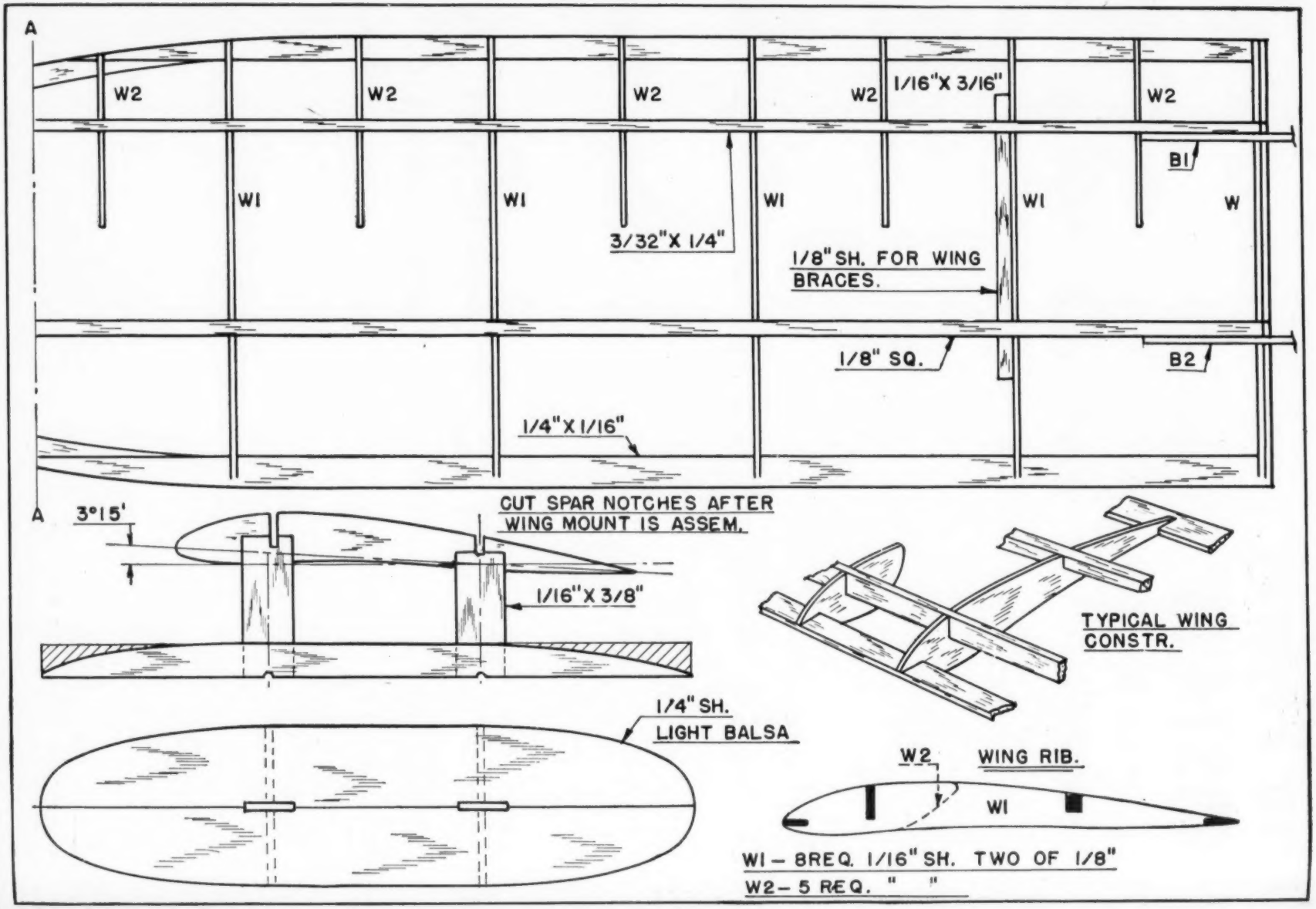
This question was a leading topic of conversation at the all time record breaking Fourteenth National Model Airplane meet. Especially when the veteran club leaders and contest directors gathered at the end of each day's contest flights did this subject come up for serious discussion. Consensus of opinion among leaders from all sections of the country was that the next few months would unquestionably see an important stepping up of the recognition now given model aviation in Uncle Sam's national aviation training program.

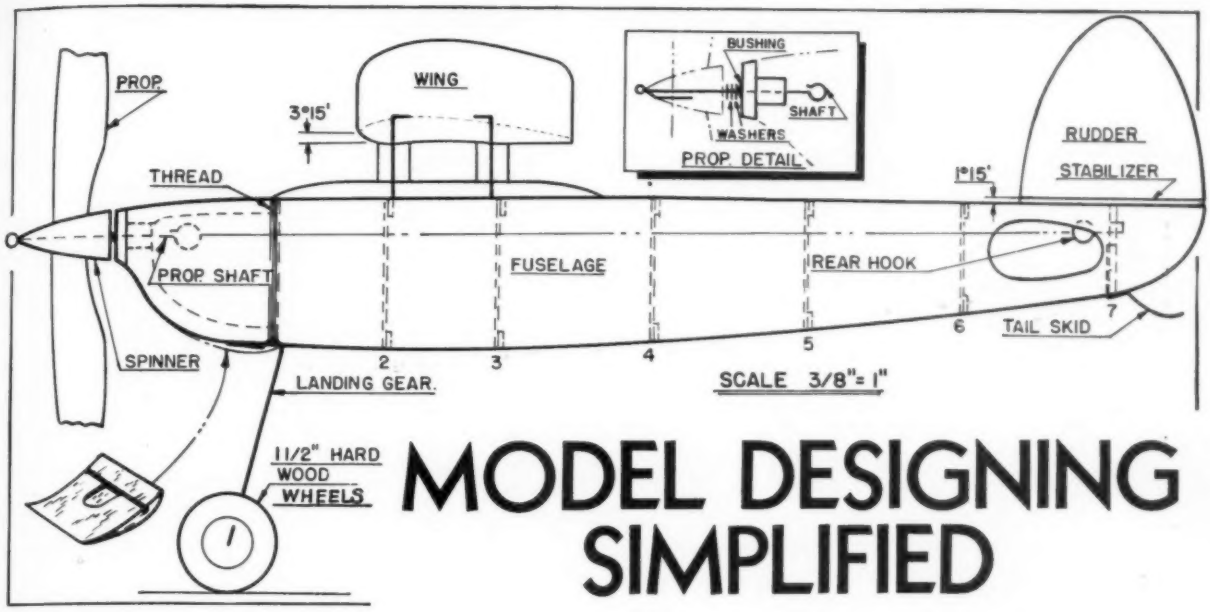
Cited by a number of the best informed leaders was the official recognition given to youth aviation training by the English and Canadian governments within recent months. Under the sponsorship of the Royal Air Force, it was reported, the English have launched a new organization which will serve as a recruiting arm for England's air defense services. Called the Air Training Corps, it serves as an apprentice division of the R.A.F. for boys from sixteen to eighteen years of age. Although the ATC, as it is popularly called, was launched a few months ago, it already has a membership of over 100,000.

In Canada, similar recognition of the importance of this type of youth training has been recently given by the government. Ernie Gamache, who made his trip to the Chicago nationals by way of Ottawa, in order to confer with the authorities now developing the program, reported rapid progress being made in Canada along lines similar to those of the ATC. Called the Air Cadets of Canada, the organization will provide official elementary aviation training for boys between the ages of twelve to eighteen. Local units will be organized under the sponsorship of municipal school or other authorities. Officers of the Royal Canadian Air Force have been appointed to direct the program. Training in model aviation will be combined with basic work in full scale aviation, with the emphasis also placed on physical drill.

With such examples as these, it was generally felt by those participating in the Chicago discussions, that a similar step which would greatly broaden the field of youth training in aviation in the United States could be expected to be launched by next fall. Many guesses were advanced as to the nature of the new developments, but

(Continued on page 50)


A
W2
W2
W2
W2
1/16"X 3/16"
W2
B1
W1
W1
W1
W1
W
3/32"X 1/4"
1/8" SH. FOR WING BRACES.
1/8" SQ.
B2
1/4"X 1/16"
A
3°15'
CUT SPAR NOTCHES AFTER WING MOUNT IS ASSEM.
1/16"X 3/8"
TYPICAL WING CONSTR.
1/4" SH. LIGHT BALSA
W2 WING RIB.
W1
W1 - 8REQ. 1/16" SH. TWO OF 1/8"
W2 - 5 REQ. " "



MODEL DESIGNING SIMPLIFIED

Designing the Parts Details and Laying Out the Patterns for the Wing—Building Your First Fuselage Model

By CHARLES HAMPSON GRANT

ARTICLE NO. 10

IN THIS series of articles the design of a simple primary fuselage model has been undertaken. Previous articles have shown how to lay out the design of the aerodynamic features and fuselage, landing gear and propeller structures. The general arrangements of the parts of the entire airplane and details of the fuselage has been shown; all that remains now is to design the parts of the wing and show how they are to be put together.

Wing

The layout of the wing structure was shown in the original three-view article.

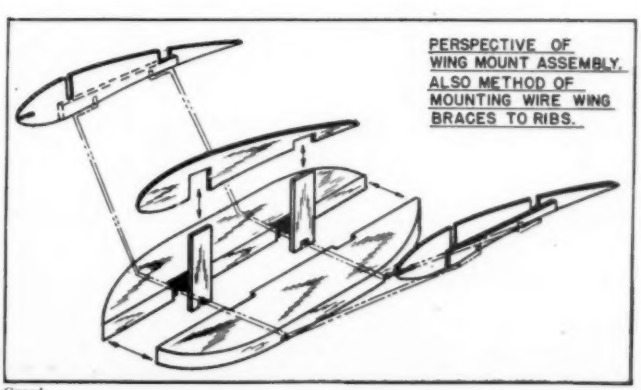
The first step is to make a full size layout, composed of centerlines as given in the three-view. Then the details of each part must be worked out. Start by making a full size layout of the wing section; the Grant X-9 has been selected and is shown on the accompanying drawings. All except the two end ribs of each half wing are to be cut out according to this outline, from 1/16" strip medium hard balsa. This size and material will provide sufficient strength.

In your full size layout draw in these ribs, the location of which is indicated by the layout single lines. Half ribs are to be inserted between the full size ribs; these should be of the same material but with the outline shown in the wing section drawing. These also should be inserted in the full scale layout as well as other parts as they are designed. The completed wing structure, when finished, will appear as in the accompanying drawing. By referring to this as we proceed with the design, an exact idea of the structure will be obtained.

The leading and trailing edges are to be of hard balsa. Cut these from 1/16" sheet; the leading edge 3/16" wide and the trailing edge 1/4". This will be inserted in horizontal notches in the ribs, as indicated.

Next insert the spars, making them as deep as possible in order to give strength. These will be fitted into notches cut into the ribs from their upper edge. Locating the spars high on the ribs gives added strength to the wing for then they will take the compression while the paper covering will add to the strength, taking the tension at the bottom. The front spar is cut from hard balsa 3/32" thick and 1/4" deep. The rear spar is to be of the same material, 1/8" square.

The wing tips are the biggest problem. The two tip ribs, W3 and W4, have different crossection than the full size W1 ribs. The pattern for the former should be laid out as shown. Lay in the curved leading and trailing edge strips. These will be made from 1/16" sheet cut to the correct shape. The curved tip can be formed nicely by properly shaped pieces of 1/16" sheet glued to the leading and trailing edge curved strips.



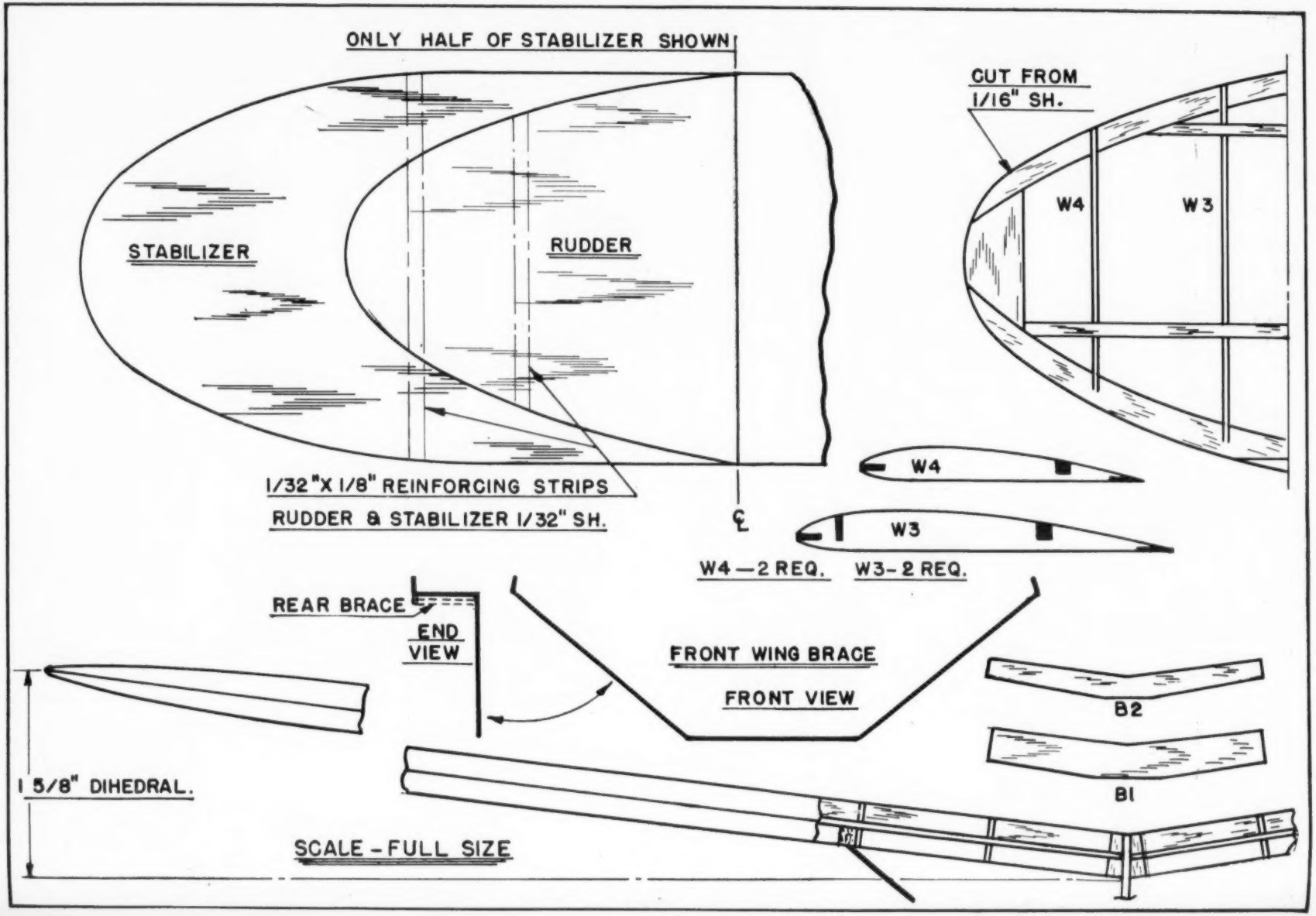
The two center ribs, W, located at the "V" in the wing dihedral, must be slightly thicker than the other ribs because they will have to be bevelled so the two wing halves will fit together properly at the correct wing dihedral. Make these 1/8" thick and indicate the bevel in the plan view. When the details of the plan view, as outlined, have been completely drawn, layout the front elevation indicating the ribs and the leading edge.

The two 1/8" ribs at the wing center cannot be put in until the wing mount assembly has been designed. This is the structure by means of which the wing will be attached to the body. There are many methods of attaching wings to fuselages; some use wire struts and in most cases such arrangements are very flimsy and lack rigidity. It is important that the wing remain fixed at all times at the designated angle of incidence established in the design layout. Consequently care should be given to the design of this part of the structure. It is also advantageous to use the type of wing mount that allows the wing to be moved backward and forward for adjustment. A mount rigidly fixed to the wing but which may slide along the top of the fuselage will be ideal.

In the design shown in the drawing very light balsa 1/4" thick serves as a face

(Continued on page 48)

Copyright 1941 by Charles Hampson Grant


ONLY HALF OF STABILIZER SHOWN
STABILIZER
RUDDER
CUT FROM 1/16" SH.
W4
W3
1/32"X 1/8" REINFORCING STRIPS
RUDDER & STABILIZER 1/32" SH.
℄
W4
W3
W4 — 2 REQ.
W3 - 2 REQ.
REAR BRACE
END VIEW
FRONT WING BRACE
FRONT VIEW
B2
B1
1 5/8" DIHEDRAL.
SCALE - FULL SIZE

Academy Of Model Aeronautics

A Division of the National Aeronautic Association

OFFICIAL MODEL AIRPLANE NEWS FROM ALL PARTS OF THE WORLD

It's Dunking Time Again

By BRUNO MARCHI

AVAST, ye Land Lubbers . . . . . what with great emphasis being placed these days on full scale naval aviation . . . . . listen to this story of a water activity that is taking the aeromodeling world by storm.

Once upon a time there was a little model seaplane whose great ambition was to go forth into the world and show all doubters that a hydro was not all wet.

It was a fortunate circumstance when one day said little hydro model stumbled into Academy of Model Aeronautics' headquarters and there declared itself in no uncertain terms. Since that momentous day, Rise-Off-Water events for both rubber and internal combustion engine powered model aircraft have been included in official A.M.A. National Record Categories.

And these events are already making bids as leading contenders for popularity honors. More than twelve R. O. W. competitions have been officially sanctioned by the A.M.A.

Interest in the water takeoff type model airplane meet is zooming to great heights.

For example, take the typical water jamboree that aeromodelers Leonard and C. Norman Purdy organized down at Portsmouth, Virginia, with the cooperation of the local Order of Moose. Designated as the Middle Atlantic States Hydro Meet it attracted contestants from five neighboring states, even from far off New York City, to compete for the great array of prizes, including, for the high point winner, an all-expense paid airline trip to the 14th Annual National Model Airplane Championship Meet at Chicago.

Over 100 rubber powered and engine powered model airplanes were on hand for the Great Dunking in the western branch of the Elizabeth River. A high wind kept events moving briskly and whitecaps out on the water foretold exciting happenings.

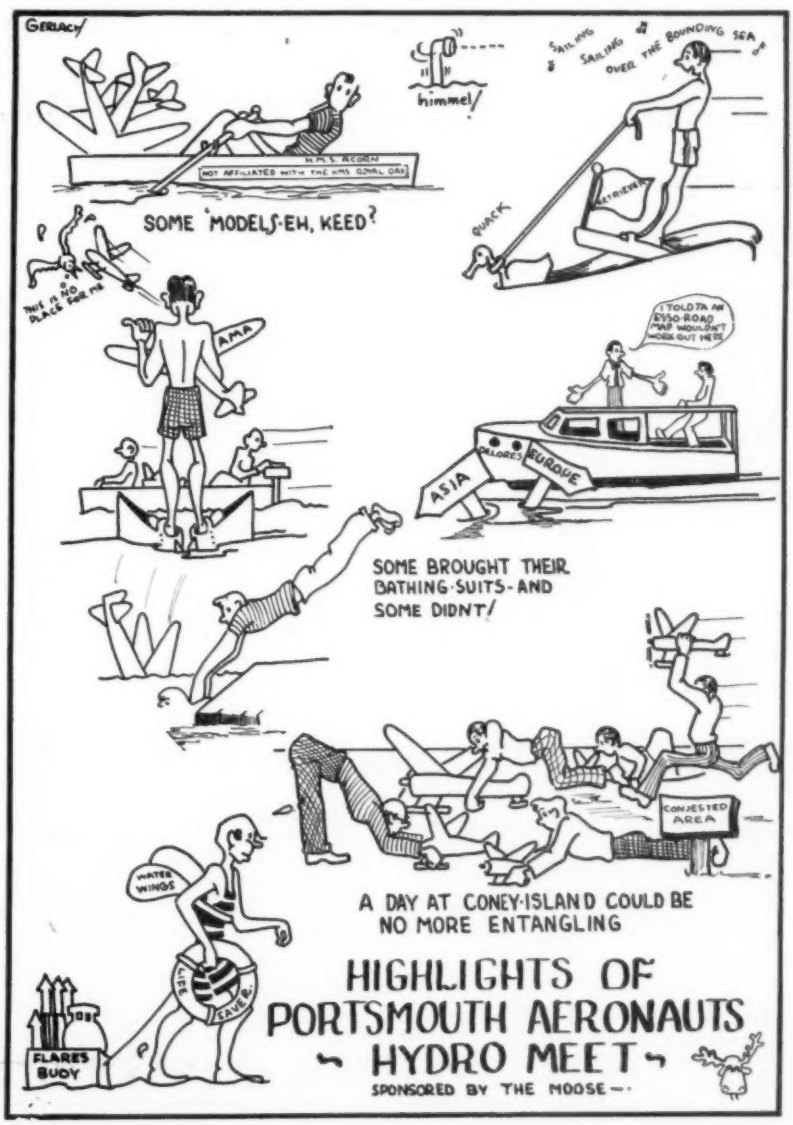
Before long the miniature planes were spanking their pontoons against the brine, testing flotation gears for proper trimming angles and water stability. Shortly thereafter the contest was in full swing. Shouts for official timers mingled with the whine of motors battling water and air resistance.

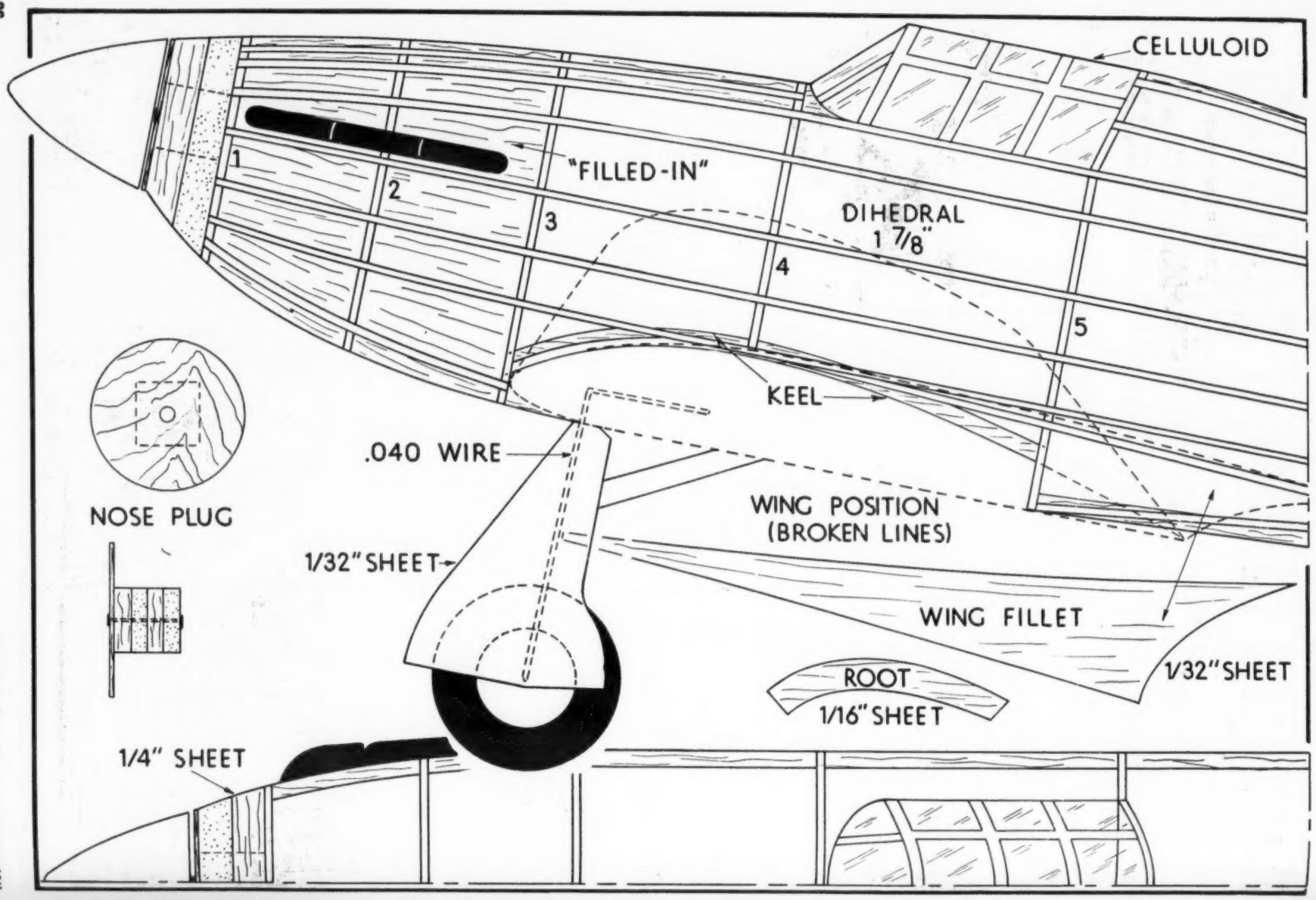
More than one contestant learned that day the need for extra buoyancy as pontoon after pontoon stubbed its nose in the running sea. Showers of cold water were thrown back, hitting propeller or hot single cylinder casing—and engines died. The forward momentum built-up for takeoff caused nose-overs, and seaplanes lay like ludicrous bugs with floats kicking in the air. Away the craft drifted before the wind's onslaught with the row boat retrieving squad hotly in pursuit. Later, it was necessary to organize a power boat retrieving section to keep up with the increased activity. Often an impatient contestant who couldn't wait for the over-taxed retrievers to swing into action, dove over the side of the takeoff float to swim after his errant plane.

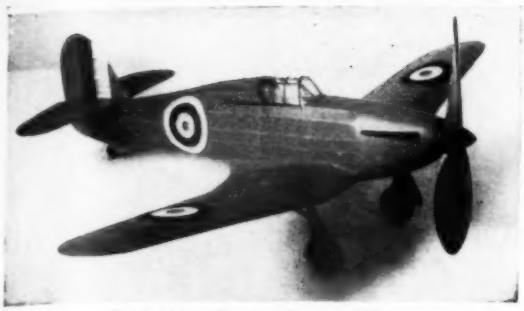
Several barges were anchored well off shore to assist the contestants in preparing their models for R.O.W. takeoffs.

During the eye-straining activity of watching some planes take off like gulls,

(Continued on page 59)




CELLULOID
"FILLED-IN"
1
2
3
4
5
DIHEDRAL
1 7/8"
KEEL
.040 WIRE
NOSE PLUG
WING POSITION
(BROKEN LINES)
1/32" SHEET
WING FILLET
1/32" SHEET
ROOT
1/16" SHEET
1/4" SHEET



Realistic and exact in every line

A remarkable flier though simply constructed

Build and Fly the HAWKER "HURRICANE"

How You Can Build a Fine Flying Replica of Britain's Famous Fighter

By EARL STAHL

Insignia is very effective

SECOND-BEST fighting plane of Britain's Royal Air Force is the Hawker "Hurricane." While somewhat slower than the equally famous Spitfire, this aerial terror is nevertheless extremely maneuverable and effective against bombers and fighters of the Luftwaffe.

Although designed nearly six years ago, the Hurricane is still one of the finest fighters in any nation's service. When powered with a Rolls Royce "Merlin," 12 cylinder engine of 1,050 horsepower, the top speed is nearly 340 miles per hour; it cruises at 300 and lands at about 70. The service ceiling is 39,000 feet. Following the usual British practice of arming war birds to the limit, eight Browning .303 inch machine guns are installed. Four guns are mounted in each wing, just outside the propeller arc, having a concentrated fire power of 9,600 rounds per minute. In construction the Hurricane is unusual in that it is the only popular fighter built largely of steel tubing, wood and fabric; this simplifies production and is partly responsible for the vast number produced and at war.

Just like the big ship in flight

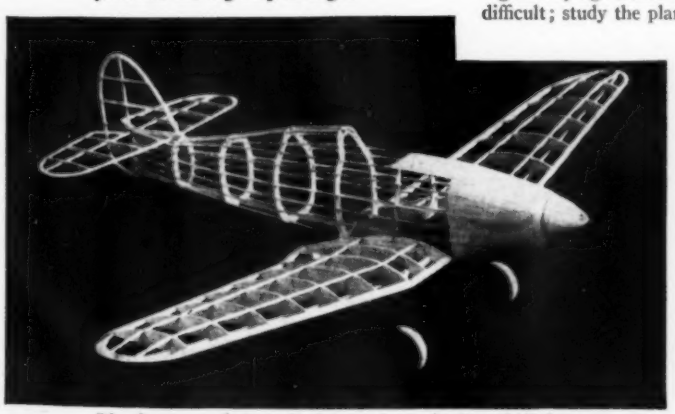
The model described here is a speedy flying reproduction of its capable prototype. Because of sleek lines and interesting construction, it will provide many hours of enjoyment both in building and flying. Construction is not difficult; study the plan thoroughly and read the instructions before beginning actual work. Build directly over tracings of the plans and be sure to cement all joints firmly.

Fuselage

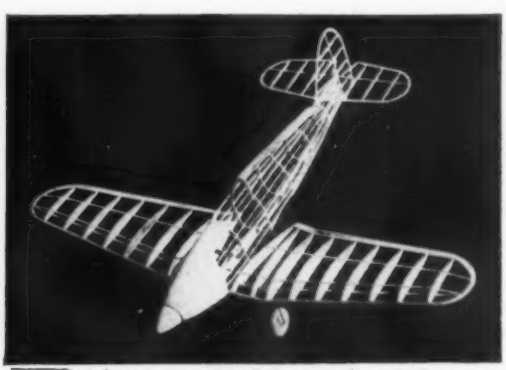
To simplify construction and alignment, the keel and former method is used. Obtain the keel pieces' proper shape by tracing the side view top and bottom outlines on a sheet of paper—depth of each keel piece is about 5/32". Cut out the paper patterns and then lightly cement them to 1/16" sheet balsa so they can be cut out. The side keel shape is indicated on the top view; two are required; they also are cut from 1/16" sheet. The various fuselage formers are shown on the plan; two of each type will be needed. Medium grade 1/16" sheet is used for them. Cut only the notches indicated; other notches should be marked and then cut later as required.

Pin the top and bottom keels to place over the side plan and then cement half the formers to their respective positions. Attach

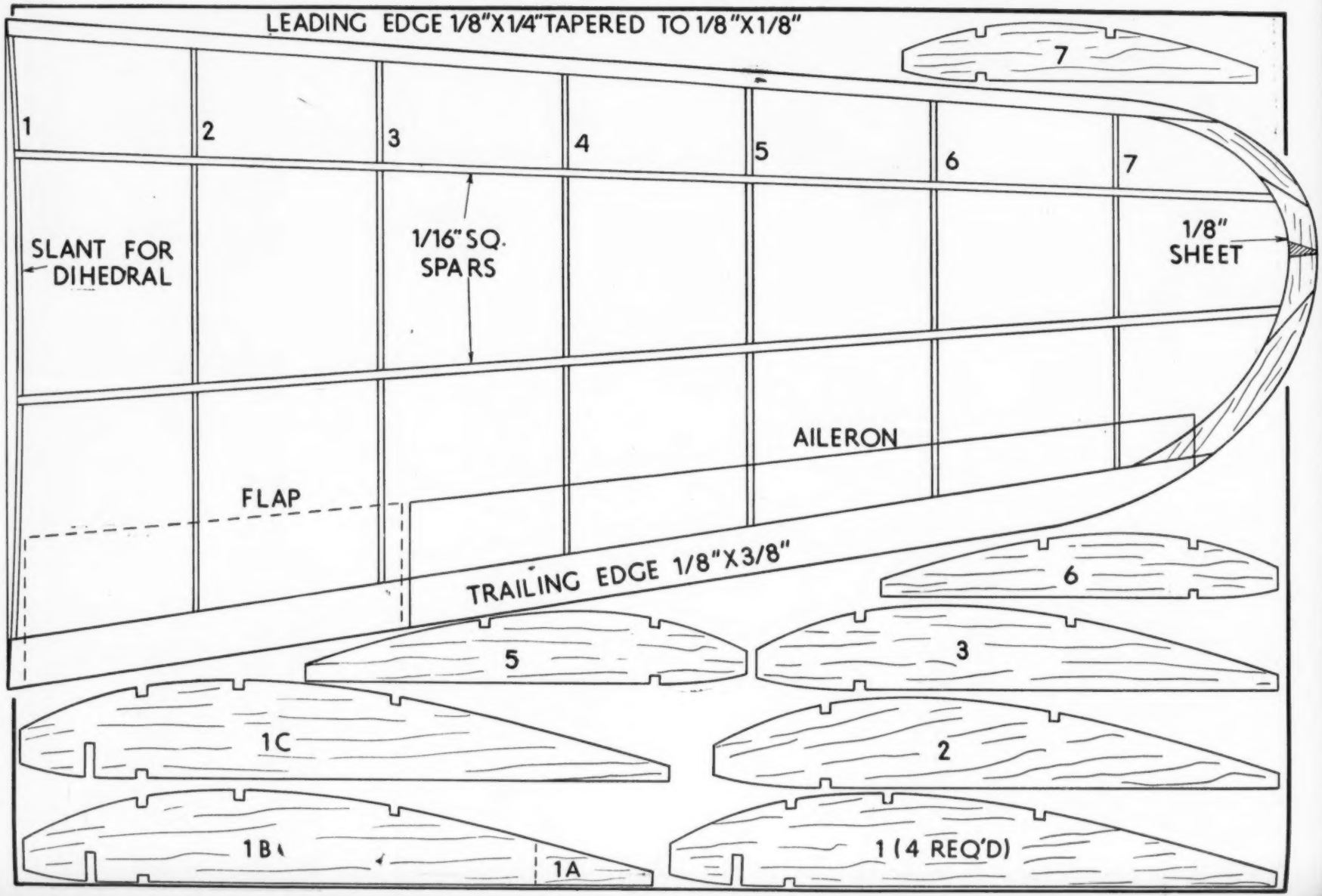
(Continued on page 52)

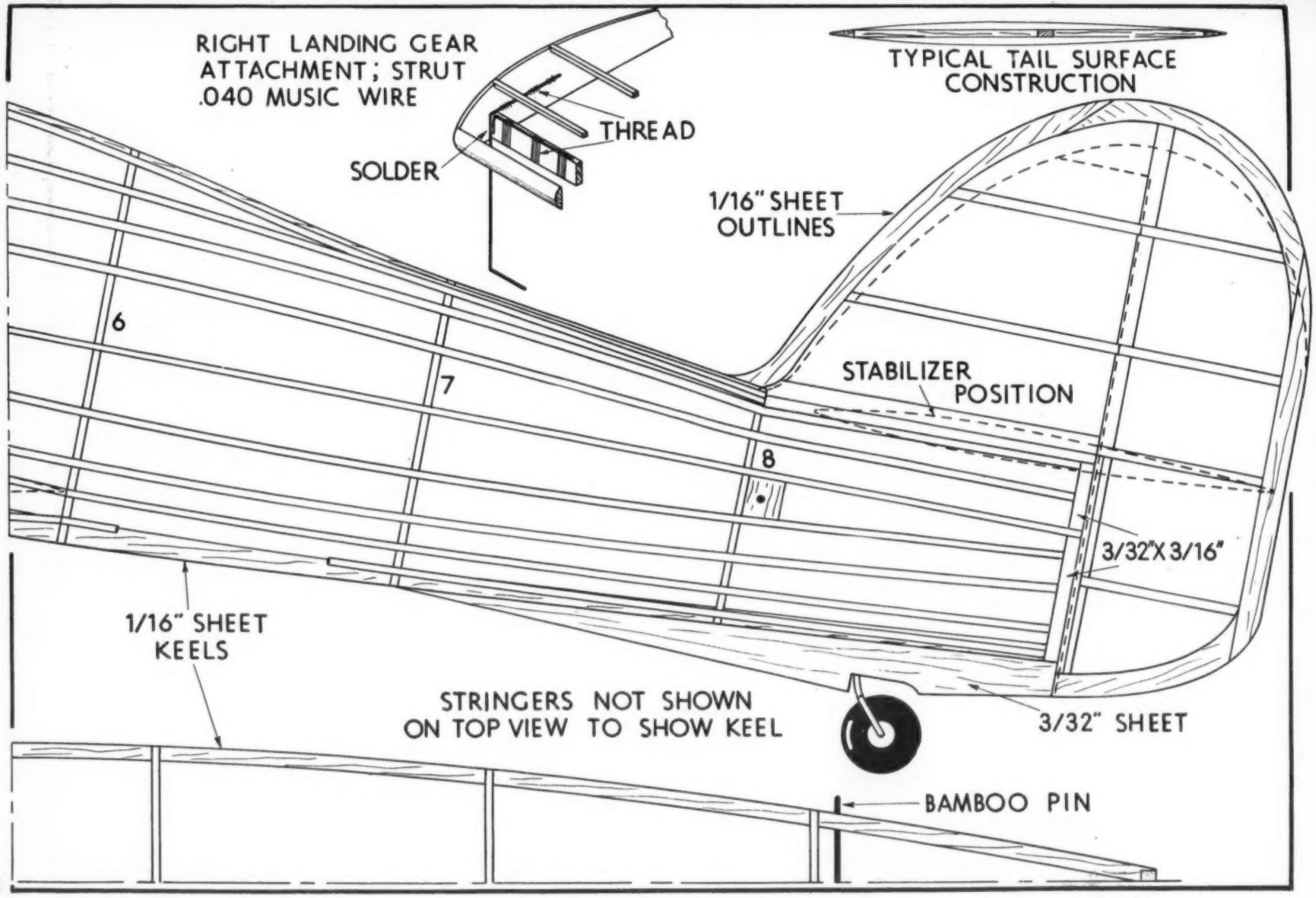


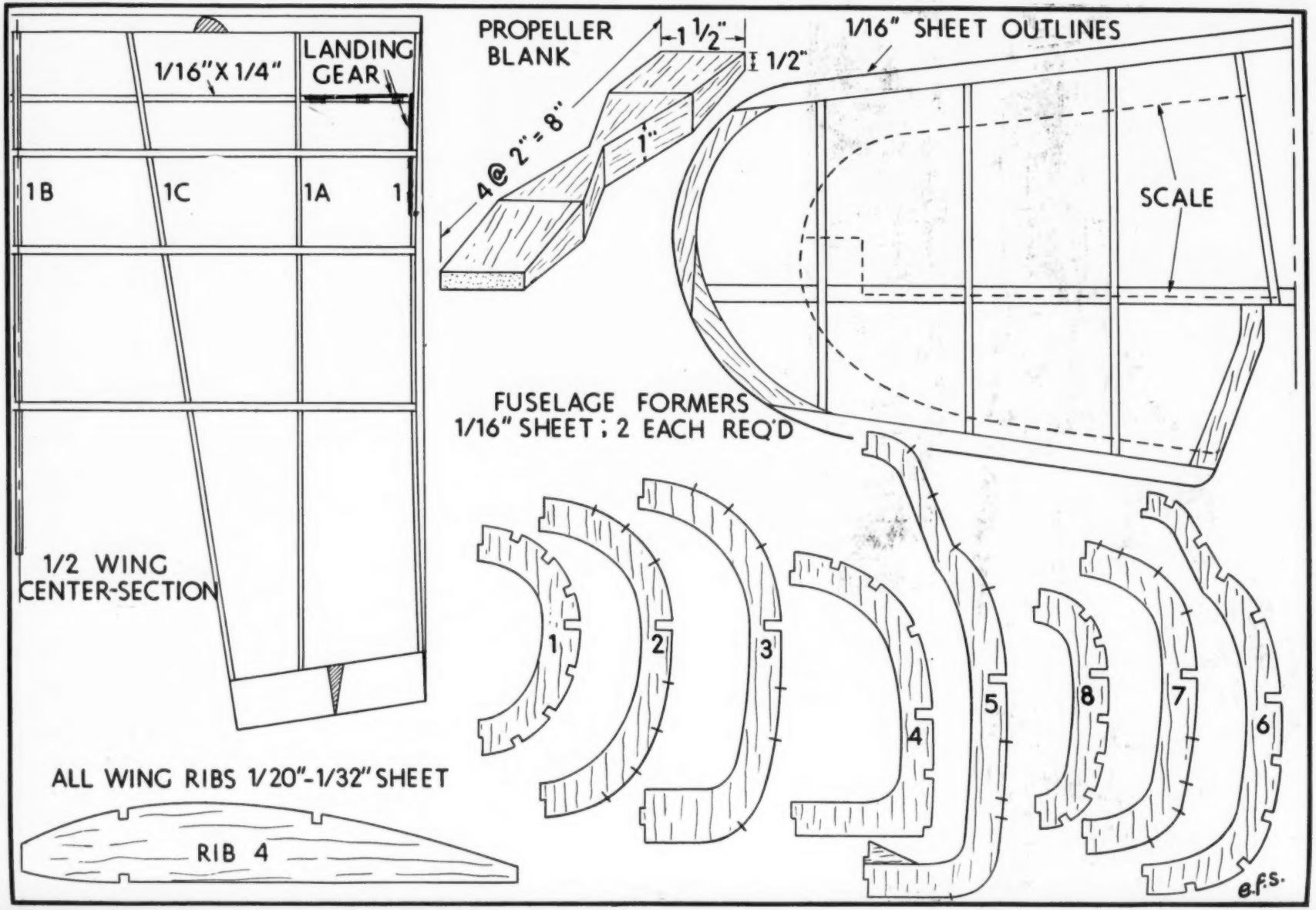
The frame work is orthodox, and sturdy though light

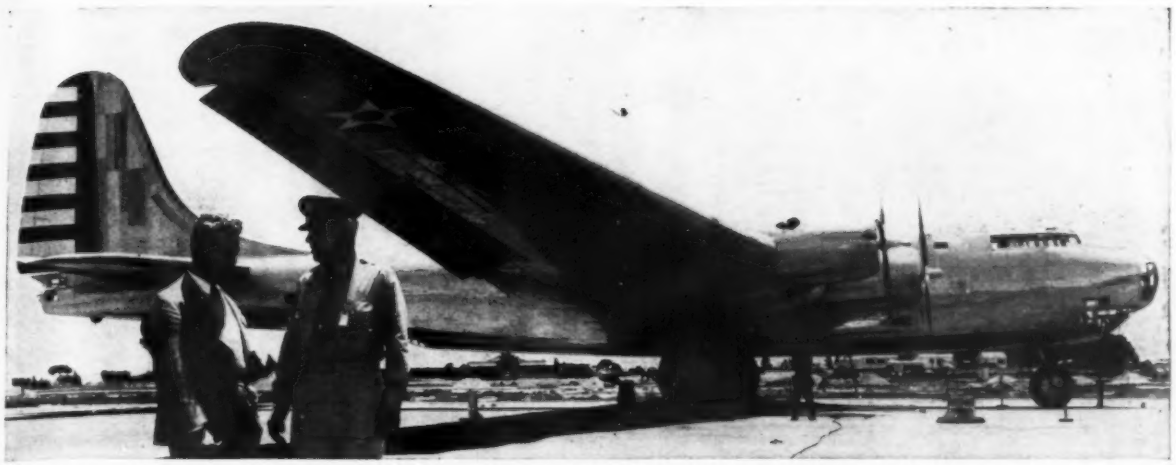


A heavy nose gives balance and strength


LEADING EDGE 1/8"X1/4"TAPERED TO 1/8"X1/8"
1
2
3
4
5
6
7
SLANT FOR DIHEDRAL
1/16" SQ. SPARS
1/8" SHEET
AILERON
FLAP
TRAILING EDGE 1/8"X3/8"
7
6
5
3
1C
2
1B
1A
1 (4 REQ'D)


RIGHT LANDING GEAR
ATTACHMENT; STRUT
.040 MUSIC WIRE
THREAD
SOLDER
TYPICAL TAIL SURFACE
CONSTRUCTION
1/16" SHEET
OUTLINES
6
7
8
STABILIZER
POSITION
3/32"X 3/16"
1/16" SHEET
KEELS
STRINGERS NOT SHOWN
ON TOP VIEW TO SHOW KEEL
3/32" SHEET
BAMBOO PIN


1/16" X 1/4"
LANDING GEAR
1B
1C
1A
1
1/2 WING CENTER-SECTION
ALL WING RIBS 1/20"-1/32" SHEET
RIB 4
PROPELLER BLANK
1 1/2"
1/2"
4@ 2" = 8"
1"
1/16" SHEET OUTLINES
SCALE
FUSELAGE FORMERS
1/16" SHEET ; 2 EACH REQ'D
1
2
3
4
5
8
7
6
e.f.s.



The giant Douglas B-19 just completed test flights successfully piloted by Col. J. G. Taylor and Maj. Stanley Umstead. It has a span of about 212 ft., the largest in the U.S., and can fly to Europe and back non-stop

FLASH-NEWS

Special To Model Airplane News

BIGGEST news of this or any other month is the initial flight of the giant Douglas B-19 Bomber (MODEL AIRPLANE NEWS, November, 1940 issue), the largest airplane ever constructed in the history of mankind. Your Flash News reporter was on hand as the monster took to the air for the first time, and has but one comment to make: It is an impossibility for anyone who has not seen this giant to grasp its huge size, its tremendous weight, its formidability!

But just for the curious, here are some rough notes: Wingspread, 212 feet; fuselage length, 132 feet; overall height, 42 feet 9 inches; horizontal stabilizer span, 61 feet; diameter of main wheels, 100 inches; maximum speed, 210 miles per hour; cruising speed, 186 miles per hour; landing speed, 69 miles per hour; range, 7500 miles; service ceiling, 22,000 feet; gasoline capacity, 11,000 gallons; normal flight crew, 10 men; passenger capacity as a troop transport, 125 fully armed men; bomb capacity, 18 tons; total useful load, 28 tons; empty weight, 83,253 pounds; gross weight, SEVENTY TONS!

It has two miles of control cables, ten miles of electric wiring in its spacious hull and wings. The famous first flight was certainly not without its thrills, particularly, as the ship left the ground in a surprising climb and Major Stanley M. Umstead, the U.S. Air Corps' chief test pilot, leveled off suddenly. The Brobdingnagian craft settled swiftly and for an instant the thrill-hungry pack of 30,000 spectators (the Douglas Company declared a noon-hour holiday for the event) anticipated a crash. However, the B-19 swooped skyward and continued to climb out over the Pacific Ocean, whose shore is only six blocks from the Douglas factory. Later Major Umstead explained the ship was much more sensitive to control than he had anticipated. It toured the El Segundo and Long Beach Divisions of the company and headed for March Field at Riverside, (Calif.) sixty miles away. With a gentle bounce and a rumble he brought the world's biggest bomber's first test flight to a halt, after 57 minutes of historic flight.

Thus came to an end four years, three and one-half millions of dollars of financial expenditure, work of 2,000 draftsmen and 20,000 men, printing of tons of newspaper and magazine publicity, and the answer to the one big aviation question which had beat against the ears of the aviation men by laymen: "Will she fly?"

And here's what those who should know said: Major Umstead: "This airplane is perfect; she handles like a pursuit ship. She can land on and take off from any modern airport in the world." (Putting an end to rumors that special runways would have to be built to accommodate the giant.) Major-General George H. Brett, Chief of the Air Corps: "Such a triumph is a dream that has come true. We feel we have just started!" Lieut. Col. James G. Taylor (commenting on the test flight as senior officer aboard): "Swell, swell, couldn't have been better!" Donald Douglas, president of the world's largest aircraft company: "We are proud, very, very proud!"

Two hours after landing at March Field the giant B-19 was sitting alone on the field: just another U.S. Army Air Corps bomber —now!

The world's largest experimental aircraft factory was recently completed when Howard Hughes, famed motion picture producer and round-the-world flier, presided at dedication ceremonies of his new Culver City (Los Angeles) plant. Making available 250,000 square feet of floor space for his engineering and research staff, the Hughes Aircraft Company's new location will be used exclusively for development of experimental aviation devices, planes and parts; there will be no production lines or delivery schedules; the company has been and will concentrate on research and development of new aviation ideas. Recently completed projects include the preliminary design layout of the gigantic Lockheed "Constellation" 64-passenger, multi-motored transport and a new plastic military plane of secret specifications.

Shelving production plans of its new tailless fighting plane, Northrop Aircraft is now concentrating on rudder and elevator assemblies production for Consolidated patrol-bombers and is now in production on the Vultee "Vengeance," two-seat dive-bomber purchased by the Royal Air Force from Vultee designs.

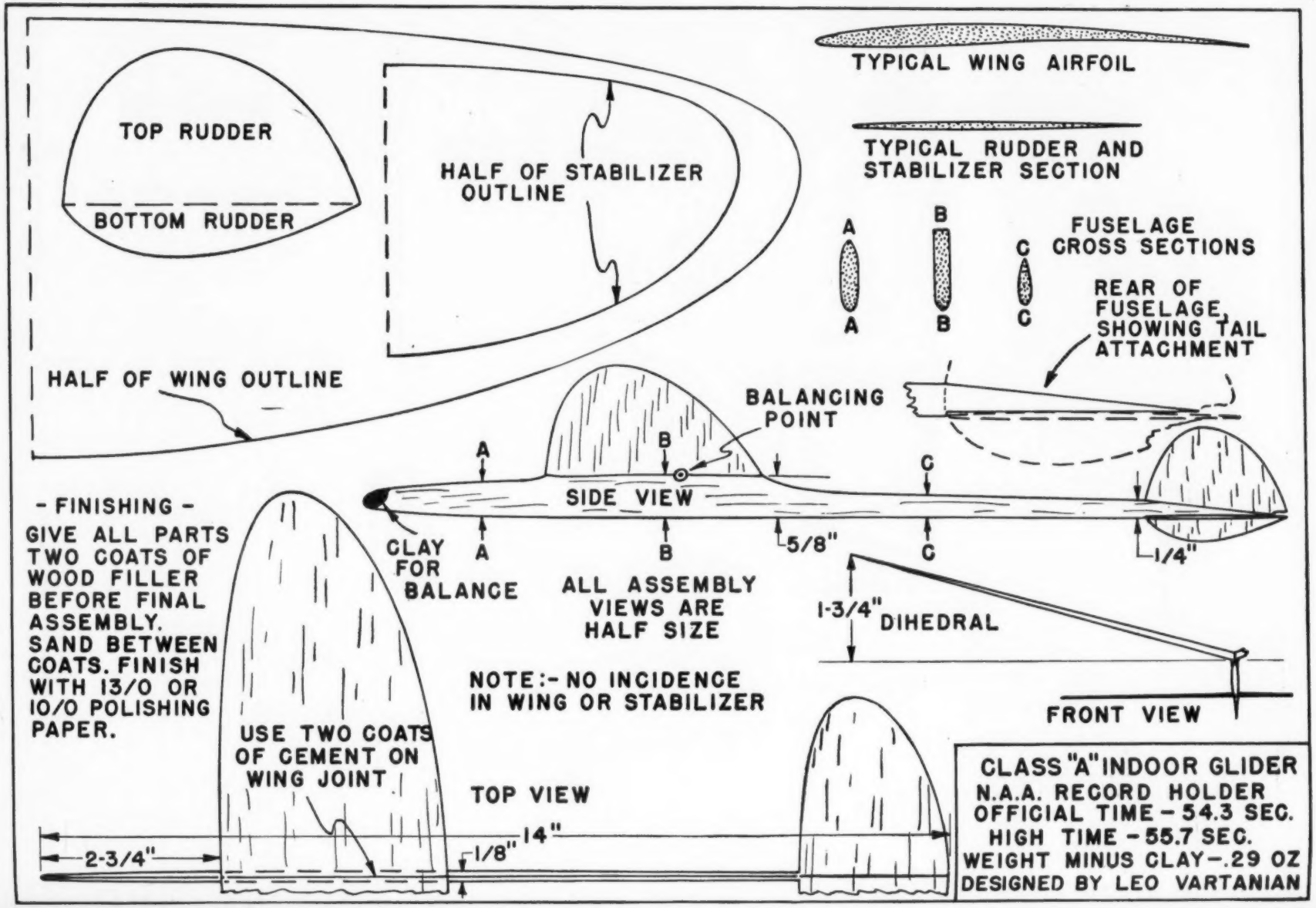
Lockheed Aircraft now promises to be the largest aircraft factory in the U.S. if not in the world, with 33,670 employees on the combined payrolls of the parent company and Vega, a wholly-owned subsidiary. Receipt of a $47,769,000 order, first under the Lend-Lease bill, skyrocketed Lockheed's backlog to $302,106,000. Four new buildings are nearing completion. Hushed-up was the recent mid-air explosion of a P-38 interceptor, killing the Air Corps test pilot and scattering fragments of the ship for miles. A broken fuel line spraying the port motor with raw fuel was believed the cause, although an investigation is now under way. The Royal Air Force version, to be constructed by Northrop will be a two-seater.

Vultee's new powered production line has cut assembly time in half; BT-13A and BT-15 training planes are now being completed every two and one-half hours day and night.

Two British Royal Air Force officers, who have been filming actual dog-fight sequences for use in the 20th Cent.-Fox picture "A Yank in the R.A.F." were killed recently in a battle with an ME-110 Destroyer Plane over the English Channel. Majority of their film footage is already in Hollywood and the picture promises to be an outstanding account of actual Royal Air Force ground and sky activities.

Many humorous and not-so-humorous experiences were gained when your corre-

(Continued on page 38)


TOP RUDDER
BOTTOM RUDDER
HALF OF STABILIZER OUTLINE
HALF OF WING OUTLINE
TYPICAL WING AIRFOIL
TYPICAL RUDDER AND STABILIZER SECTION
A
A
B
B
C
C
FUSELAGE CROSS SECTIONS
REAR OF FUSELAGE, SHOWING TAIL ATTACHMENT
BALANCING POINT
SIDE VIEW
CLAY FOR BALANCE
5/8"
1/4"
1-3/4"
DIHEDRAL
FRONT VIEW
ALL ASSEMBLY VIEWS ARE HALF SIZE
NOTE:- NO INCIDENCE IN WING OR STABILIZER
- FINISHING -
GIVE ALL PARTS TWO COATS OF WOOD FILLER BEFORE FINAL ASSEMBLY. SAND BETWEEN COATS. FINISH WITH 13/0 OR 10/0 POLISHING PAPER.
USE TWO COATS OF CEMENT ON WING JOINT
TOP VIEW
2-3/4"
1/8"
14"
CLASS "A" INDOOR GLIDER
N.A.A. RECORD HOLDER
OFFICIAL TIME - 54.3 SEC.
HIGH TIME - 55.7 SEC.
WEIGHT MINUS CLAY - .29 OZ
DESIGNED BY LEO VARTANIAN

A High Performance
RECORD BREAKER

How You Can Build and Fly the Class "A" Indoor World Record Glider

By LEO VARTANIAN

In flight. A fine performer indoors or out

IF YOU are one of many model builders who have not enjoyed the fascinating sport of indoor model glider flying due to lack of plans for this type plane, the little glider presented herein should be enthusiastically received.

This little model, though simple enough for any novice to construct satisfactorily, will appeal to the most particular of experts, due to its fine design and high performance.

At record trials held last winter by Chicago Aeronuts, this glider amazed modelers by recording the hitherto-unheard-of time of 54.3 seconds. Best unofficial flight was 55.7 seconds, highest ever recorded by an indoor Class A glider!

Although primarily an indoor glider, it may be flown outdoors on calm days with most gratifying results; such flights average about 45 to 50 seconds. Flights of many minutes duration, frequently out of sight, have been obtained when flying outdoors. By carefully following the plans and instructions any model builder can build this Class A glider: a definite threat in any contest.

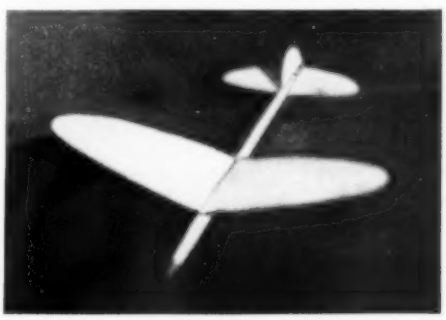
Wing and tail surfaces should be made from very light balsa, preferably 4 to 5 lb. weight; the fuselage is made from fairly hard, straight-grained balsa. All wood used should be quarter-grained if possible.

The author demonstrates

Wing

As the wing is the most important part of the completed model, extreme care should be taken in making this part. Obtain a piece of balsa, of specified weight, 3/16" thick, 3-1/2" wide and 12" long.

Begin by making a cardboard pattern of the complete wing outline and tracing around it on the balsa. After cutting and sanding the outline to shape, sand it down to 5/32" thickness. Taper the wing from this thickness at the center to about 1/64" at the tips.



Easy to build with graceful lines

The next step is sand the upper airfoil curve into the wing. After this is done sand in the undercamber; this is most easily done by wrapping the sandpaper around a small bottle. Do not use sandpaper any rougher than No. 1 as it will make scratches that cannot be removed.

After the wing is completely sanded it is given two coats of wood filler. Sand in between coats and give a final sanding with 13/0 polishing paper. Dihedral is 1-3/4" on each side.

Fuselage

The fuselage is made from fairly hard, straight-grained balsa. Lay out correctly according to plans. Notice the cutout on the bottom rear of the fuselage to accommodate the stabilizer; also note the crossectional patterns on the plan. Follow these as close as possible. After the fuselage is correctly shaped, it is also given two coats of wood filler and sanded with 13/0 polishing paper.

Tail Surfaces

The tail surfaces are made of 1/16" sheet balsa of the correct weight. Cardboard patterns should be used to get correct outlines. The top and bottom rudders are made in one piece and are cut apart when completed. Grain of the wood in the rudder should run up and down.

The completed tail surfaces should be about 3/64" thick when completed; they should be finished in the same manner as the wing and fuselage.

Assembling

The first step in assembling is to make sure the positions where the wing and stabilizer are glued have no incidence: This is very important. The next thing is to cement the stabilizer in place, making sure that it is correctly aligned. When this is fairly dry, glue on top and bottom rudders, making sure they are perfectly lined up. After these are dry cement the wing in place, using two coats of cement. When the glider is completely dry the completed model may be waxed for a super-smooth finish.

Adjusting and Flying

Although adjusting an indoor glider for correct flight is a fairly touchy job, the following tips and instructions should enable the average modeler to obtain satisfactory results.

Adjusting the model for flight is begun by first balancing it on the finger tips at the point designated on the plan, adding clay until it balances with the nose slightly down. Then warp a slight left turn into the rudder and test glide it. The ship should glide smoothly to the floor. If it stalls warp the trailing edge of the stabilizer on the right side down. Do not add clay to cure a stall unless absolutely necessary. Keep gliding the model and increasing the power with which you launch it, taking out the stalls as described. When it reaches an altitude of about twenty feet and glides smoothly in left circles of about 30 to 40 feet in diameter, it is ready for a real throw.

The plane should be thrown in the same manner as a baseball, and up at about a 55° angle, with a slight right bank. It should go almost straight up, snap out at its maximum altitude and start to glide. If it has a tendency to go over on its back before snapping out of the throw, warp down the stabilizer trailing edge; if it banks excessively in the glide, warp up the right wing trailing edge.

Here you have a glider you can be proud to fly at any indoor contest.

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BIG 30

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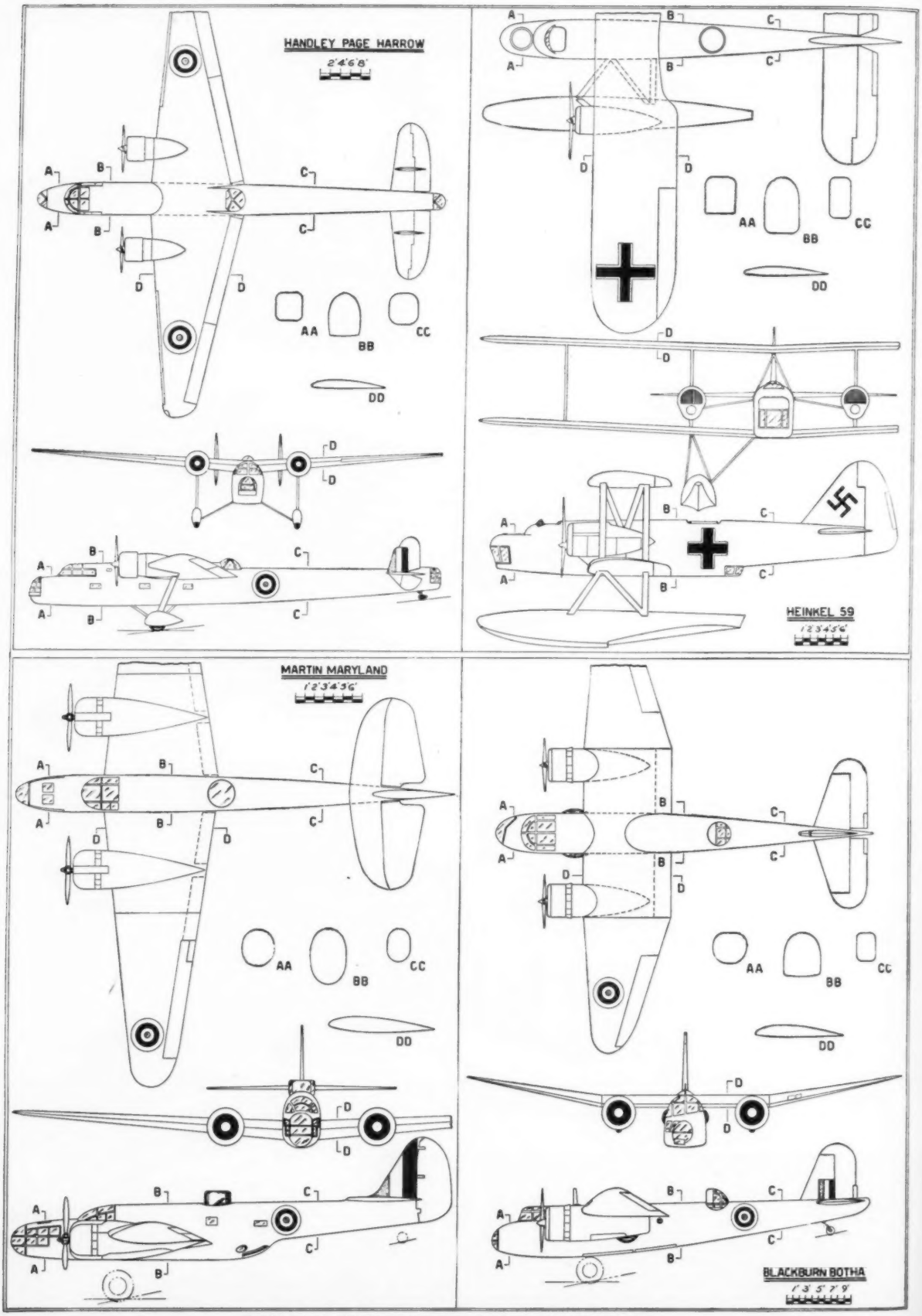
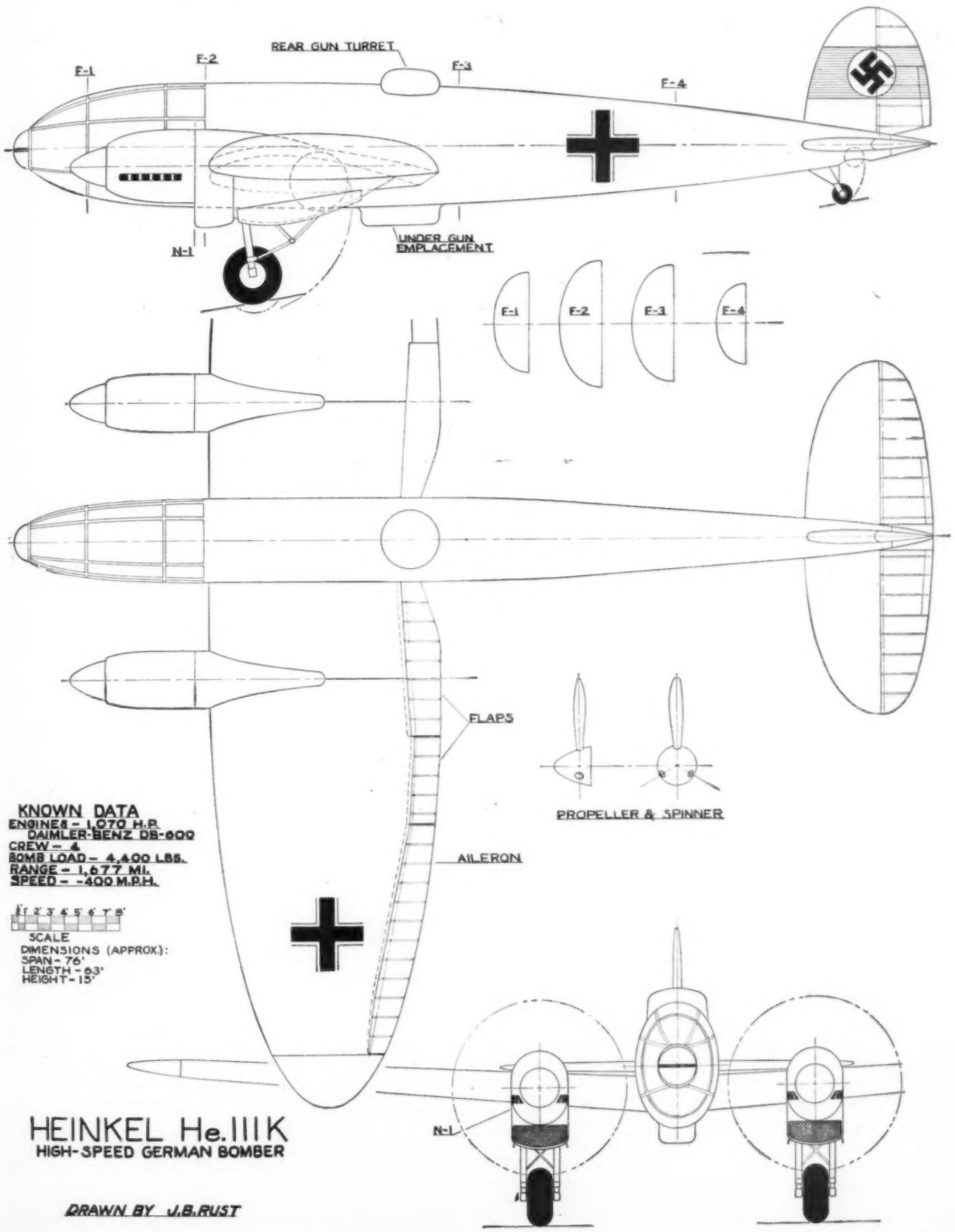


THESE PLANS MAY BE ENLARGED TO ANY SIZE BY PHOTOSTATING

Heinkel He.111K High Speed Fighter Bomber

THIS is one of the latest German bombers, claiming a top speed of 400 miles per hour. Note how structural design has been modified to produce the highest possible degree of streamlining and thereby "squeeze out" of it tremendously high speed. Many of these have been used over England and in the Mediterranean campaign. They are built with the precision of a watch, regardless of statements concerning workmanship and poor materials to the contrary.



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Flash News

(Continued from page 31)

spondent visited the North American plant in Inglewood, California, during the height of the recent strike. For three weeks more than 3,000 troops were in complete control of the plant, while strikers milled about outside. We were forced to conduct our interviews while an armed guard stood by taking in every word. Now, all but two troop companies have left and the plant is under company management.

Wage details have been agreed upon and the last chapter in the story of U.S. first government-controlled strike-bound plant is now being written. "Next time we'll know just what to do and believe me we'll do it a helluva lot quicker!" was the comment of one platoon chief. May the other factories heed this warning!

Water polo prowess he learned while a student at the Naval Academy from which he graduated in 1938, recently came in handy when Ensign Eric Allen, Jr., attached to Squadron VF-6, North Island Naval Air Station saved the life of a fellow pilot, Lieut. F. T. Corbin. During a training flight, Allen noticed that Corbin was having engine trouble aboard his tricky Grumman F4F-1 fighter and was losing altitude over San Diego Bay too fast for comfort.

Swooping into a fast landing at the Air Base, Allen raced his own Grumman across the field and leaped from the pit before the ship had come to rest at the water's edge. Plunging into the habitually rough breakers he swam 300 yards distance to Corbin's fast-sinking craft, grasped the unfortunate pilot and swam back to shore. This 600 yard swim was covered in record-time and is no little feat even for pleasure. Corbin was unable to release his plane's emergency flotation gear in time and the craft sank to the bottom almost immediately. Allen has been recommended for a special award for his heroic swim, quick-thinking and fact action by the 11th Naval District.

The United States Army Air Corps is no longer! The War Department has unified the Army Air Corps and the General Headquarters Air Force into a United States Army Air Force under the command of Major General Henry H. Arnold. Under the old setup, the Air Corps handled only procurement, testing, training (primary and advanced) supply, air bases, transportation, etc., while the G.H.Q. Air Force consisted of mobile units of the Air Army, i.e., fighters, bombers, attack, observation, photography and all combat and tactical flight operations. This new command will come directly under the control of the Air Council composed of the Assistant Secretary of War for Air, Chief of the Army Air Force, Chief of the War Plans Division, War Department and two other key officers. This move was designed to "make the air force as modern as the instrument it uses," stated Secretary of War Stimson. Thus does America now claim an Army Air Force. There are no plans, whatever, to consolidate this new Army Air Force with Naval Aviation, stated General Arnold.

In connection with this last statement it is interesting to note, however, Congress is now considering the award of the Congressional Medal of Honor posthumously to the late Brig. Gen. William D. (Billy) Mitchell, who staked his military career (and lost) on the fight for a separate air force. Thus, even while blowing one way does the political wind blow another. FLASH NEWS insists on commenting, however, that the day of an American Air Force, uniting ALL the flying forces of the nation under one command (Secretary for Air and Military Aviation) IS coming and WILL come! It is definitely coming and will be here long before any of us anticipate.

The regular two-year duty tour of Air Force officers has been extended to three years in Hawaii Department, Army Headquarters recently announced. The first Flying Fortress Bombers are now seeing service in the islands, and with the decision of Japan to concentrate on its Eastern political and military frontier, rather than assist its Axis partners in the attack on Russia, our Hawaiian, Phillipine and Western Pacific air bases are growing not only in size but importance.

First of the new super-fast Martin B-26 (MODEL AIRPLANE NEWS, March, 1941 issue) to meet with an accident crashed and burned in a field near the Baltimore factory of the company killing Lieut. Colonel Elmer B. Perrin, test pilot and A. J. Bowman, Air Corps inspector. The plane had just been accepted by the Army and an investigation is pending.

Captain Eddie Rickenbacker is now well and back on the job; released from Piedmont Hospital in Atlanta, as completely cured from the near-tragic results of the crash of one of his big Eastern Air Line Douglas DC-3 transport planes near Morrow, Georgia, last February 26th. He was aboard as a passenger. America's No. 1 World War Ace Rickenbacker was pleasantly surprised when it was announced that Eastern Airline Employees had established a perpetual blood and plasma (fluid in which red corpuscles float) bank "to be made available to the people of the South as a token of esteem and in appreciation of the care and attention given Captain Eddie Rickenbacker by the staff of Piedmont Hospital." P.S.: Rickenbacker flew to New York by plane!

The United States Army has taken formal command of ferrying British warplanes from West Coast plants to Atlantic coastal points, it was recently announced. Colonel Robert Olds, famed as leader of the "Flying Fortress" good-will flight to South America, is in comamnd of the 200 pilots assigned to this work.

We recently chatted with Charles A. Lindbergh, while in town on a speaking tour and asked him for something for our readers. Here's what he said: "All right, put this in FLASH NEWS: Why does the Army still use the 24 foot parachute which drops a man to the ground with equivalent force of a jump from the second story of a building, while Germany uses the 30 foot parachute which lets you down with the ease of a jump from a three-foot kitchen stool? The success of their parachute troops has been made possible entirely by use of this 30 foot chute. No parachute troop could possibly be effective if he has to hit the groud at 20 miles an hour while carrying a full pack, machine-gun, ammunition and all other necessary equipment. Some twenty per cent of the personnel dropped in our Army's 24 foot chutes are injured or other-

MEGOW Super Quaker

Gas Model **$4.50**

(By mail, postage 20c extra)

And who doesn't? That is why the new SUPER-QUAKER attracts so much attention everywhere it appears. It is a REAL airplane . . . a thoroughbred in every line that makes winners of the fellows who build and fly it. With automatic Retractable Landing Gear and ultra-streamlining, this new Megow gas model climbs like a frightened hawk. It is brand-new—and already has won top prizes in contest flights.

The new Megow SUPER-QUAKER has many of the features that made the Flying Quaker and the Quaker Flash so famous . . . but new ideas have been developed, and improvements added that surpass all previous designs. It has shown consistent performance of five-minute flights or more on twenty-second engine runs. The SUPER-QUAKER is a Class C, six-foot, four-inch wingspan model. The kit is complete except for liquids, wheel and power plant. Full size plans are included, and all materials carefully selected.

Send 10c today for big, new 132-page catalog!

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PHILADELPHIA, PENNSYLVANIA

Ranger

$1.50

Primarily a Class B, the Ranger is a Class A when used with the "199" motor shown below. Span, 46". Weight, ready to fly, 18½ Oz. Comp. with motor, wheels, propeller, flight timer and kit, $15.75. Kit only, $1.50. By mail, 20c extra.

Aero Champ

95c

New type designed to take the "199" engine. Easy to build. Small, light, and sturdy for safe landings. Span 46". Kit E-21, less wheels and propeller, 95c. Complete with engine, wheels, propeller, kit and flight timer, $14.95. By mail, 20c extra.

NEW 1941 MEGOW "199" MOTOR

$12.50

New type ignition coil . . . new Crank Shaft and Counter-Balance milled to a square to take the . . . new Improved Timer with glass-hard Cam. Bore and stroke. 5/8". 1/7 h.p. Displ. .199. Wt., 3½ oz. Block-tested. Operates equally well upright or inverted.

Megow

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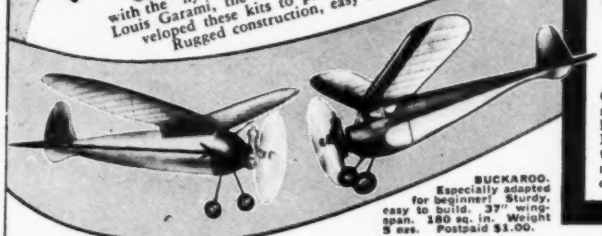
WITH • REMOVABLE • ENGINE • MOUNTS

Here are the flyin'est *little* ships made. Sleek streamlined models designed around The Super-ATOM. Combining the amazing performance of this engine with the "fly-ability" of these models assures at its peak! Louis Garami, the most practical of model engineers, developed these kits to please both expert and beginner! Rugged construction, easy to build.



BUCKAROO. Especially adapted for beginner! Sturdy, easy to build. 27" wingspan. 180 sq. in. Weight 3 ozs. Postpaid $1.00.

HAYMAKER. Grill wing, monocoque fuselage. 33" wingspan. 165 sq. in. Weight 4 ozs. Postpaid $1.50.

EVE

$1.00 PP

Garami's newest! Handsome cabin job, streamlined with tapered wings. Magnificent flyer, easy to construct. 35" wingspan. 165 sq. in. 4½ ozs.

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The engine of tomorrow, yours today!

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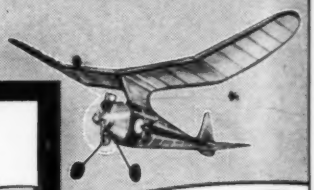
Latest type, immediate delivery.



WAHOO. High wing mount for zippy contest performance. 33" wingspan. 180 sq. in. 4½ ozs.

$1

Full sized, detailed plans. Liberal supply balsa, cement, dope, etc. These are DOUBLE YOUR MONEY'S WORTH kits. New PLANE catalog, profusely illustrated. Features ALL makes engines, kits, parts, etc. 6c coin or stamps.

POLKS Model Craft Hobbies
429 7th Ave. (Dept. M-8) N.Y.C.

wise incapacitated during parachute troop maneuvers, and equipment is getting heavier all the time. And another thing," he said before we could comment, "the present standard Air Corps chute will not stand more than 250 miles per hour. "Then what happens," we queried the steely-eyed, patient 'Lone Eagle' of 1927, when a pilot goes overboard from modern 400 mile-per-hour fighter planes?" "There haven't been any of them to come back and tell the Army Specifications Board what happens!" he said, and was hustled off by the crowd. And this is just one of a thousand things Lindbergh KNOWS about the Germans that we REFUSE to listen to! And because we refuse to listen we have stripped him of his Air Corps commission, figuratively tarred-and-feathered him in the press, booed his radio and outdoor speeches! If America had listened to Lindbergh, not because he's Lindbergh, but because he's a top-flight military observer who has seen with his own eyes Luftwaffe operations, we wouldn't be an over-confident, neurotic, half-swaggering, half-crawling air defense country.

Not ONE American bomber has been lost on the ferry flight to England; only casualty has been a takeoff nose-over. Ferry pilots feel safer now. They're being brought back to the States aboard Consolidated "Liberator" transport planes instead of cargo steamers, prime prey for German U-boats!

The new Ford aircraft engine promises to startle the entire military aviation world. First of all it will be a 12-cylinder liquid-cooled V engine developing 1800 horsepower and weighing only 1750 pounds LESS than a pound-per-horsepower! Air-cooled engines are now down to 1.1 pounds per horsepower and liquid-cooled engines have always, by necessity, been almost TWICE as heavy! This new engine will have two cylinders cast in a single piece, which engineers have said couldn't be done. Thus, both banks of the "V" will be a single unit, six units in all. There will be no carburetor as fuel injection will deliver the air-gas ratio required in the exact ratio necessary. The engine will deliver 1500 hp. up to 32,000 feet, something NO other aircraft engine will do! That means (1800 horsepower from 12 cylinders) they will get 150 hp. out of EACH cylinder—compare that with the normal 20 hp. modern automobile high-compression engines are delivering!

T.W.A., according to its prexy, Jack

(Continued on page 48)

The 1941 Nationals

(Continued from page 10)

was first-place winner, Jim Walker, Portland, Oregon, 88 pts. Chicagoan Arthur Earle was a nip-and-tuck second placer with 83 points. Trading a 1940 second place for a third this year, Charley Seigfried scored 77 points for a national trophy and an Ed Roberts award.

Of the 26 entries, fourteen were forced to drop out because of mechanical difficulties and high winds, preventing normal operation.

Jim Walker of U-control fame, flew a ship of his own design as well as his own radio equipment. Designed with a special apparatus pit for receiving unit removal (which was simple in construction), his seven-foot tricycle-landing-gear model slid through its paces most successfully. The plane's most outstanding features were a three-way control, rudder elevator and throttle. Ground control was operated on a device similar to actual plane controls.

Charles Seigfried, W9JLR of Wichita, Kansas, an RC fan for five years, was ably assisted by Winnie Davis, who has been cooperating with Seigfried for several years. Noticeably absent from this year's competition were the Good Brothers, Walter and Bill; Walter being engaged in national defense and Bill happily married. In spite of his not being entered, Walter contributed his time towards aiding other entries in getting into the air.

Again this year the Chicago Area Radio Club Council set up its two-way radio communications to retrieve lost models. Warren Clark, Chairman of the Council, described this year's activity as most successful; aiding in actual recovery of over 330 lost, strayed or stolen models. Operating 2½ meter equipment and utilizing ten mobile units, a near-perfect coverage was effected; a total of 22 operators were on duty throughout the entire outdoor meet.

It is only fitting that we mention the

REAL PLANES IN MINIATURE

KEEP IN STEP WITH MODERN AVIATION—BUILD METAL COVERED MODELS

Announcing the addition of three new models, The Grumman F4F-3, Spartan "Executive," and Republic Guardsman.

Actual photograph of Grumman F4F-3 Model.

It is easy and fascinating to build real planes in miniature with sheet aluminum covering. Imagine these models, completely covered with aluminum even to reproducing the rivets in the actual planes. The photograph will give you an idea of how the finished model will look.

The kits contain all balsa parts cut to outline shape, die-cast propellers, rubber military type wheels, aluminum tubing for landing gear, celluloid windows, finest super detail plans, aluminum sections ready to apply. Nothing missing to build a real plane in miniature, with the exception of liquids.

SELECTION OF NINE MODELS

21"	BOEING STRATOLINER (Postpaid)	$4.00
	(This kit is absolutely complete, including motors, aluminum cowls, liquids, etc.)	
13¼"	Republic Guardsman	$2.50
13½"	Vultee Vanguard 48A	2.00
13¼"	Curtiss Hawk 75A	2.00
12"	Spartan "Executive"	1.50
12"	Consolidated PB2A	1.00
9½"	Grumman F4F-3	.75
10"	Bell P39 Airacobra	.75
9"	Northrop 17 A	.50

If your dealer can't supply you, order direct and include 20c postage with $2.50 kits, 15c postage with $2.00 and $1.50 kits, and 10c with other kits. No C.O.D.'s. No stamps. Cash at your own risk. Send 3c for illustrated descriptive folders.

DEALERS: Your customers will be asking for these kits. Write today for prices on your letterhead. Be prepared for the demand.

C Z MODEL AIRPLANE CO.
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HISTORIC ENDURANCE FLIGHT - -

★ 3510 LAPS AROUND
★ 225 MILES COVERED
★ 4 HRS. 5 MINUTES IN THE AIR UNDER POWER

WITH TIGER ENGINE

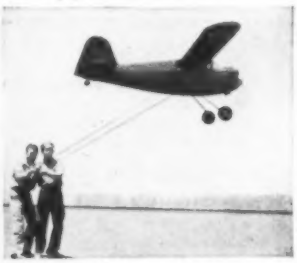
Dean De Gonia receives recognition for World's Record endurance flight, 3510 laps in a single day, at Southern California Gas Model Airport.

1. SETTING UP — With 17½ oz. fuel tank and 54 ft. control lines this TIGER powered 44" Controlled model is set up for the first full-power endurance test ever made.

2. TAKE OFF at 7:20 A.M. starts first test of engine stamina under actual model flight conditions. TIGER engine speed 8500 R.P.M. lifts ship loaded 32 oz. per sq. ft. into air in 4½ seconds.

3. REFUELING — Five refueling and check-up stops averaging 15 minutes each are made to complete 3510 lap test. 80 oz. Ethyl-Castor Oil fuel runs TIGER engine 4 hrs. 5 minutes.

4. CHANGE PILOTS—Continuous operation of motor and plane require pilots switch at controls every 10 to 15 minutes. 5 different pilots alternate to complete 225 flying miles.



AS you look around it is apparent that the average model flyer is getting flights far beyond his reach a few years back. He is making unbelievable flights and setting new records with better engines.

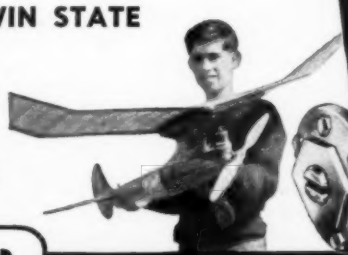
Setting the pace for motor performance Bunch Engineers never cease checking engines "on the field" under actual "service conditions".

All these records show that TIGER engines using high speed 12" propellers and Ethyl gasoline—Castor Oil fuel as recommended will surpass in performance and outlast at "peak R.P.M." any other power plant.

TIGER ENGINES WIN STATE CHAMPIONSHIPS

MICHIGAN CHAMPION 1941 Class C — Jerry Moorman flying TIGER powered Cleveland Playboy Sr.

MONTANA CHAMPION 1941 Class C — Don Jacobs with Tiger powered Comet Zipper.



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Keep Them Flying with a Sky Chief

only $6.95

FAMOUS FOR

ITS LOW PRICE
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Making Immediate Shipments

BLOCK-TESTED
UNCONDITIONALLY GUARANTEED

Class "C" 1/5 H.P.—Complete with Coil & Condenser

*Sky Chief "Lightning" 3 ounce Coil
*Bore ⅞", stroke ⅞", displacement .526
*R. P. M. up to 13,000 with 13" propeller.
*All bearings are Diamond-bored and Micro-lapped
*Weighs approximately 10 ounces with coil and condenser
*Multiple-finned Cylinder made of Molybdenum Iron
*Piston centerless-ground and Micro-lapped with PERFECT CIRCLE Piston Ring for longer motor life
*Heat-treated Crankshaft made of polished-ground steel scientifically balanced.

Not a kit—a completely assembled motor ready to run.

American Supercraft Corporation
Union and Lake Streets
Chicago, Illinois, U.S.A.

names of these men who have given so generously of their efforts and time to their companion sport: M. Warren Clark W9YDV, Norman MacConnell W9TXU, Geo. Fenton W9SXZ, Tom Bohnsack W9PEQ, Les Morey W9KBO, Larry King W9BZK, Gerald Eastman W9LHF, Al Knodell W9TLQ, John Disch W9VEZ, Harry Hale W9MCM, R. V. Danner W9BYG, Bill Schalmo W9YZV, E. F. O'Hare W9PIU, Ted Pieco W9TMT, Dean Baker W9HZQ, Earl Moorman W9ZYL, George Ashton W9PNV, Bill Shaw W9UIG, Richard Acker W9UKU, Roland McCune W9TOK, Joe Hanley W9FIB, and Francis Harris W9UKS.

Strange as it may seem, with the thousands of flights conducted during the five days, there were no world records established.

Representing the Texas AYA, championship team in their statewide eliminations and trip winners, were: W. L. Vavricke, San Antonio; Herman Webber, Houston; Charles Atkinson Graham, Don Currey, and James Kolb of Dallas; accompanied by Ed Bergdorf of the SWGMA.

From below southern border came M. D. and Luis Rodrigas, accompanied by Captain Nicolas De Teresa, who is Presidente of Federacion Nacianal de Aeromo Delisode Mexico or Gas Model Association of Mexico. This was their second trip to the Nationals; they entered their new model, an Electra 12.

Don Persons, AMA Leader from St. Petersburg, Fla., Model Club, with Fred Nichols, Jerry Hansen, George Sadler, Bob Beckler attended their first national competition in the gas model events.

Steve Corbett, heading the Detroit delegation, including last year's National Champion George Sass, with 43 members, who did right well this year; an anonymous donor contributed a sum of money to enable them to attend this year. Among the winners in their local point system for trips were: Ed Naudizus, George Sass, Fred Annas, Jim Kahremamis, William Alsop, Ed Manning and Joe Dallaire. The Detroit Chapter of AMA was organized in 1938 and has grown to 150 active members.

Carl A. Hopkins, W. Va. State Project Technician for Model Aviation, WPA, the only office of its type in the nation, attended with the state representative, Bobby Bates, 10 years old and holder of the Class D ROW world's record. With membership of 22, the Hampton, Va., Nacanauts boast of an organization of employees of the NACA, according to Joe Dodson, club secretary. They all were on hand.

The "Minneapolis Times Star" had twenty guests; Jim Roberts and Conrad Renning were guests of North West Airlines.

The Fred W. Megow Team Trophy Winner, Jordon, the Marsh-Boston Travelers Aviation League, was represented by eleven trip-winning point-system contestants: Harry Lerman, Ralph Brown, Robert Abrahamson, Harry Keshishian, Stanley Colson, Arnold Rosenberg, Robert Sandberg, Gordon Cain, William Dean, Louis Souther and Stanley Stanwick.

Travelling in a new low-wing Spartan, Allen Vopel and Eldred Hoopingartner were flown from Cleveland by Miss Arlene Davis, as her guests. Miss Davis was made an honorary AMA Model Leader at the Victory Banquet.

Again this year Aeronuts Ed Lidgard, Dick Obarski and Walter Fromm flew, by proxy, the New Zealand entries in the Moffett event.

Saving an extra day of flying as a result of efficient arrangements, the Indoor-Stick and Cabin Events were held on the same day at the International Amphitheatre. With dozens of models in the air at the same time filling the 75 foot-high ceiling, several hundred spectators were thrilled at performances by the nation's "number one" indoor experts.

On duty throughout the entire meet at the outdoor site were representatives of the Chicago Chapter of the American Red Cross. Equipped with a complete field hospital, Floyd Frey and his associates rendered first aid to over a hundred contestants who sustained minor cuts and bruises. The alternating attendants were members of the newly-organized uniformed corps of the American Red Cross.

A most interested spectator was Bert Pond, past Mulvihill Trophy winner, formerly of Minneapolis, now of Chicago. The Philadelphia Model Association (with Victor R. Fritz, Scale Model Committee Chairman,) delegation, included Marek Andrews, David Lane Call, Donal Krupp, Michael Virchch, Walter Eggert, Ray Beaumont, Bill Berry and Teddy Gonzoph.

Editors Tom Cunningham, Lt. Frank Parykaza and Wally Simmers, "slaved" several nights to again publish a bang-up edition of the traditional and well-received "Blurb." Cartoons were by AMA Cartoonist Lee Gerlach.

As an added service, meet Manager Steve Meuris is issuing 1500 copies of the 28-page book containing the results and awards. One will be mailed to each contestant who participated in the 1941 Nationals.

A total of 136 trophies and 228 medals was awarded winners in this year's event, more than has ever been given. Among this year's new awards were trophies donated by: Geiberson, Pesco, Eddie Rickenbacker, Clifford W. Rogers, Berkeley (Perpetual), Ritz, Flo Torque, Aviation Writers, Atom Microdyne, and the American Legion Aviation Post. The "old stand-bys," most of which are perpetual trophies (with miniatures given individual winners) were: Exchange Club of Detroit, National Exchange Club, Fred W. Megow, International Moffet, Edward Roberts, Thomas Bourne Joy Memorial, Pan American Airways, Emery Award, Wheat Memorial, "Air Trails," Trost, Burgess, Chicago Park District and Chicago "Times," "Model Craftsman," Ohlsson-Rice, David X. Meyer, Gar Wood, Forster, Gorr, Modelcraft, United Airlines, B. J. Kesl Co., Beryloid, Mulvihill, Braniff Airways, Comet, Guillow, Champion Sparkplug, Bloomingdale, Chicago & Southern Airlines, Jack Vilas, Stout, Early Birds, "Flying Aces," Springfield, Greater Chicago NAA Chapter, Croil Hunter, American Airlines, MODEL AIRPLANE NEWS.

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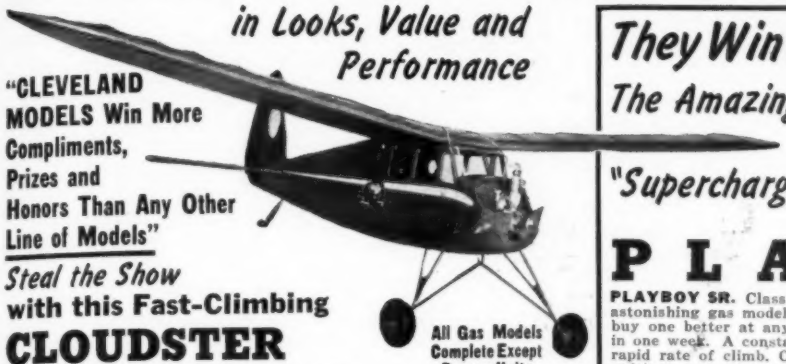

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PLAYBOY JR. Class B. Span 54½". (360 sq. in.) Watch this one in the meets this year. Build it, and be the "dark horse" of every meet. Complete Kit **GP-5006** (except power unit) only..... **$2.50**

BABY PLAYBOY. Class A. Biggest gas value on market. Span 33". Complete Kit **GP-5008** (e. p. u.) only..... **$1.00**

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GP56—32" Stinson Reliant 1½" Scale Gas. Complete Kit except power unit **$10.95**

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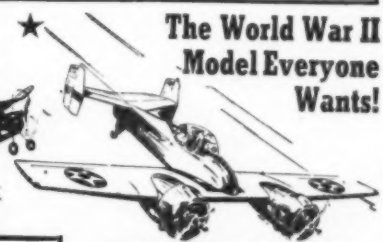
A beautiful "commercial type" of unusual design. Span 42½". For class "B" contests. Very popular. By all means, build it now. Complete Kit **GP-5007** (except power unit) only **$2.50**

GP5005, 48" Champion. Class "B" Gas. **$2.95**



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Two More 3/4" Scale Modern War Models

AIRACOBRA
Span 25½". Complete Kit **SF-76**, only **$2.50**

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Span 24½". Complete Kit **SF-74**, only **$2.50**

GRUMMAN SKYROCKET

Beautiful 31⅛" authentic scale model of America's new twin motor 450 mile-per-hour "Terror of the Skies." It's fast. It's spectacular! It's the envy of every modelbuilder! Both motors pull—and how! Its popularity has been instantaneous, so don't delay building it. Strikingly colored silver and yellow. Complete Kit **SF-75**, only..... **$3.00**

BRITISH SPITFIRE

This realistic Cleveland model of the "Pride of the RAF" is the pride of any builder. Beautiful 27⅝" model of England's popular interceptor fighter. Large wing area makes this an excellent flyer. Speedy. All silver (with suggestions for green and brown camouflaging). Complete Kit **SF-73** only **$2.50**

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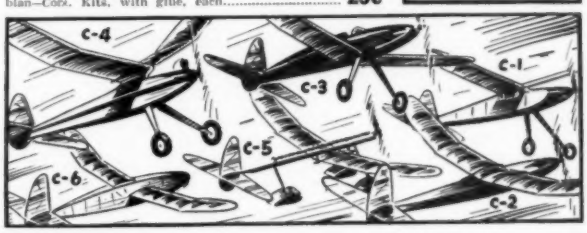
CLEVELAND GLIDERS

E5011—20" Javelin, very popular. **25c**



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In addition to the above 64 National Trophies and 239 National Medals were awarded the lucky winners.

This marks the first year no "merchandise awards" were made; all awards were permanent and lasting, trophies, plaques, medals, etc. This change resulted from requests of modelers, who, upon winning kits, motors, etc., lost them throughout the year and then had nothing to show for their success in competition. The new type awards met with unanimous approval; now contestants won't be able to say their rewards "flew away."

It has been announced by Mr. F. E. Kardes that the Chicago Park District Flying Field at 79th and Keeler Avenues will be officially designated as a Model Airplane Flying Field. By early spring ten asphalt takoff platforms of 50 ft. radius, and graded for drainage, will be constructed at the park site. All other necessary facilities as well as landscaping, periodic trimming of weeds, will be carried out. This will make the most completely equipped model airplane flying field; and we hope Chicago's example will prompt other communities to provide American youth with "More Model Airports."

CHICAGO PARK DISTRICT

Division of Recreation

1941 NATIONAL MODEL AIRPLANE CHAMPIONSHIPS

RESULTS AND AWARDS LIST

NATIONAL CHAMPIONSHIP

Name and City	*Pts.*	*Award*
Henry Struck, Jackson Heights, L.I., N.Y.	175	Exchange Club of Detroit Trophy and the National Exchange Club Wrist Watch Award
Ray Beaumont, Philadelphia, Pa.	150	
Stanley Stanwick, Pensacola, Fla.	150	
W. A. Gibson, Hamilton, Ohio	125	

TEAM CHAMPIONSHIP

Junior Aviation League, Boston, Mass. (11 members)	150	Fred W. Megow Team Trophy
Kresge Aero Club, Newark, N.J. (25 members)	112	
Detroit A.M.A. Chapter, Detroit, Mich. (25 members)	63	
New Haven Skyrockets, New Haven, Conn. (3 members)	47	

INTERNATIONAL MOFFET FINALS

	Time	
Ray Beaumont—U.S.A.	1082.	Int. Moffet Trophy and Team Trophy
Ralph Brown—U.S.A.	731.6	Team Trophy
James Broderick—U.S.A.	668.5	Team Trophy
Dick Korda—U.S.A.	435.0	Team Trophy
H. A. Thomas—U.S.A.	387.5	Team Trophy
Alfred Leong—New Zealand (Ed. Lidgard—Proxy)	286.3	Team Trophy
W. G. Alexander—New Zealand (R. Obarski—Proxy)	248.4	Team Trophy
Charles Lamb—U.S.A.	174.1	Team Trophy
Harold Righton—New Zealand (Walter Fromm—Proxy)	167.2	Team Trophy

RADIO CONTROL EVENT

Jim Walker	88	Edw. Roberts Trophy & $100.00 Roberts Award
Arthur Earle	83	National Trophy and Edw. Roberts $50 Award
Charles H. Siegfried	77	National Trophy and Edw. Roberts $30 Award
Marvin Hemp	73	National Trophy—$15 Award
John W. Ault	50	National Medal—$15 Award
George Karpovich	39	National Medal—$15 Award
H. D. Edwards	29	National Medal—$15 Award
Robert Reder	13	National Medal—$10 Award
Kenneth Harker	9	National Medal
Clark V. Hile	8	National Medal
Cecil Winik	6	National Medal
Allen Trimmer	5	National Medal

FLYING SCALE EVENT—OPEN DIVISION

Henry Struck	61.1	Thos. Bourne Joy Memorial Trophy Miniature and $25 Joy Award
Edward Naudzius	54.2	National Trophy and $15 Joy Award
Chester Lanzo	49.5	National Trophy and $10 Joy Award
Charles Bleitner	33.9	National Medal
John E. Clemens	26.9	National Medal
John Irving	25.2	National Medal

FLYING SCALE EVENT—SENIOR DIVISION

Walter S. Eggert	60.5	Pesco Trophy and $25 Joy Memorial Award
Ray Beaumont	59.3	C. Z. Trophy and $15 Joy Award
Kenneth Kraemer	52.3	National Trophy and $10 Joy Award
Gregory Kohn	48.0	Berkeley Award
Frank Schnagel	44.7	National Medal
Leonard Mazewski	39.5	National Medal
Rancel Hill	37.8	National Medal
R. Annas	34.5	National Medal

FLYING SCALE EVENT—JUNIOR DIVISION

Paul B. McCready, Jr.	49.6	National Trophy
Gorden H. Robertson	42.3	National Medal
Dick Jasion	18.5	National Medal

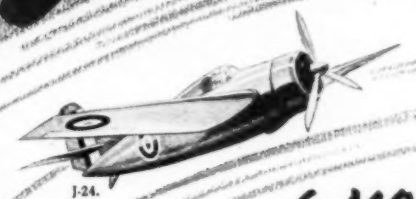
LONGEST SINGLE FLIGHT ANY GAS EVENT

Ray Acord	1193.6	Pan American Airways Trophy

CLASS "C" GAS—OPEN DIVISION

Sal Taibi	1482.7	MODEL AIRPLANE NEWS Trophy and $50.00 Emery Award
Ray Acord	1481.6	Ritz Trophy and $25.00 Emery Award
Herbert P. Andrews	1187.7	National Trophy and $15.00 Emery Award
Kenneth R. Knisley	1173.1	National Trophy and $10.00 Emery Award
Malcolm Warner	1070.8	National Trophy
Elmer J. Shapiro	1045.9	National Trophy
Glenn Temte	1043.8	National Medal
Jack Preston	1037.1	National Medal
Robert W. Reich	1034.1	National Medal
George Reynolds	996.4	National Medal
Don Jacobs	993.9	National Medal
John Findra	979.5	National Medal
William Lain, Jr.	972.5	National Medal

And Still they Come!



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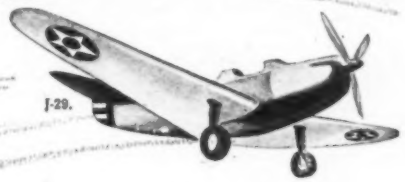

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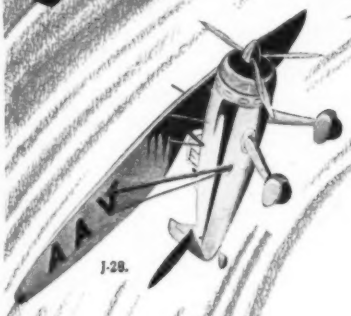
6 MORE BIG MEGOW WAR PLANES 50¢ EACH



J-28.

J-24. GRUMMAN G36A "Martlet." Shipboard fighter used by the U. S. Navy. Also extensively used by Great Britain.

J-25. GRUMMAN "Skyrocket." An American-made one-man fighter now creating a great sensation.

J-26. WESTLAND "Lysander." General purpose British fighter used in African campaign.

J-27. FOCKE-WULF "FW 198." One of Germany's newest fighter planes.

J-28. HENSCHEL HS-126. A well-known German general purpose and observation plane.

J-29. FAIRCHILD M62 Trainer. An American trainer used in training program for air cadets.

There's just one best way to know the warplanes . . . build models of them! Show your friends big flying models that you have built of today's most talked-of planes . . . and make them admit that you "know your stuff!" You will be regarded as an expert, and rightly, too.

The six big flying models introduced here bring the Megow list of these 30-inch warplanes up to an even dozen, all widely different in principles, design and purpose. Build a series of these American, British and German models . . . it's the greatest thrill you ever knew. Kits are complete in every detail, plans are large and instructions clear. Megow's specially imported and selected balsawood is supplied with all these kits.

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J-26.

Megow

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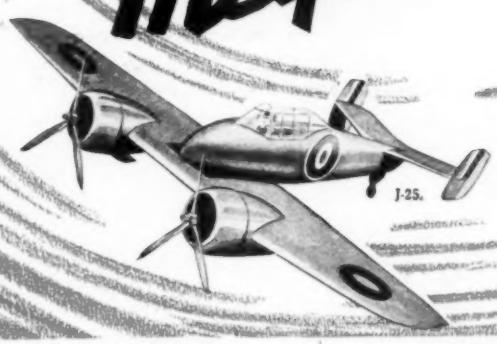

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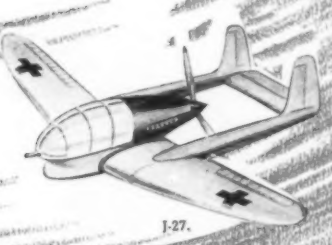

J-27.

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Jerome Furlong	906.9	National Medal
Charles Weiss	868.7	National Medal
Morris Worick	857.3	National Medal
Alex Horback	839.5	National Medal
Joe Dallaire	824.4	National Medal
H. Thomas	816.6	National Medal
Howard T. Bonner	799.0	National Medal
Henry R. Cherweznik	798.8	National Medal
Edward Tschernoscha	779.1	National Medal

CLASS "C" GAS SENIOR DIVISION

Walter Brandle	1322.0	Wheat Memorial Trophy & $100.00 Cash Award
Bud DeBolt	1196.9	Wheat Memorial Trophy & $75.00 Cash Award
Charles Atkinson	1178.7	Wheat Memorial Trophy & $50.00 Cash Award
Edward Konefes	1111.1	National Trophy and $25.00 Wheat Award
Earl Steir	1110.4	National Trophy
Jerry Chapman	1076.7	National Trophy
John Findra	999.2	National Medal
Keith M. Torgeson	980.4	National Medal
Bud Bowman	966.2	National Medal
Bill Parmenter	891.3	National Medal
Geo. Reich	869.5	National Medal
Arthur Moff	864.6	National Medal
Geo. Gentry	860.7	National Medal
Morgan Jones	852.2	National Medal
Don Redding	851.1	National Medal
Jim Fields	819.4	National Medal
Bill Redeker	811.4	National Medal
Edward Furnweber	798.5	National Medal
Anthony Koprivnik	789.4	National Medal
Palmer Fultz	777.2	National Medal
Russell Simmons	743.1	National Medal
Eastman N. Jacobs	732.7	National Medal

CLASS "C" GAS—JUNIOR DIVISION

Brofman, Jerry	804.1	Air Trails Trophy
Alsdorf, Charles	743.3	Trost Trophy
Earle, Walter C.	677.6	National Trophy
Ball, Frank	638.5	Berkeley Award
Repenning, Wm.	608.2	National Medal
Geist, J. Richard	591.1	National Medal
Chas. Lauritsen	501.1	National Medal
Bennett, Porter	488.2	National Medal
Mohs, C. E., Jr.	478.9	National Medal
Huizenga, Bob	474.0	National Medal
Richard D. Wood	448	National Medal
Jung, Melvin J.	403.2	National Medal

OUTDOOR CABIN—JUNIOR DIVISION

Scuro, Samuel	1008.5	Guiberson Trophy
Blatter, Albert	966.3	National Trophy
Robbins, Harry	788.6	National Trophy
Jennings, R. C.	756.2	National Trophy
Denton, Robert	674.1	National Medal
Noll, H.	624.4	National Medal
Robertson, Bill	622.4	National Medal
MacCready, P.	593	National Medal
Durand, Weiler	592.4	National Medal
Kreigh, Keith	553.7	National Medal
Robertson, G.	537.9	National Medal
Holmes, Warren	507.5	National Medal

OUTDOOR CABIN—OPEN DIVISION

Dick Korda	1082.7	Berkeley Trophy and Miniature
H. Thomas	1013.5	National Trophy
J. Vermock	792.6	National Trophy
Chester D. Lanzo	786.9	National Trophy
Charles E. Hollinger	775.6	National Trophy
Ray Berens	759.2	National Trophy
Mark Heller	752.3	Air Trails Award
Howard F. Trampenau	745.1	National Medal
Edward Lidgard	724.5	National Medal
John Schneider	680.9	National Medal
Henry Struck	662	National Medal
Conrad B. Renning	631.8	National Medal
Jas Noonan	524	National Medal
L. J. Eichstaedt	513.0	National Medal
Robt. W. Reich	508.1	National Medal
Alexander Ligas	502.9	National Medal
Howard Mitchell	500.0	National Medal
Henry A. Thomas, Jr.	488.4	National Medal
C. Weklo	459.4	National Medal
Douglas T. Lagerstedt	395.9	National Medal
Edward D. Lamb	434.7	National Medal
Mrs. Hattie Lagerstedt	428.3	National Medal
Jos. Matulis	395.9	National Medal
Frank Vollrath	392.5	National Medal
Irvin N. Berens	386.2	National Medal

OUTDOOR CABIN—SENIOR DIVISION

Ray Beaumont	1133.5	Burgess Trophy
James A. Broderick	1099.7	National Trophy
	711.5	Longest single flight Outdoor Cabin-Stout Perpetual Trophy
R. Brown	1056.1	National Trophy
Charles A. Lamb	1015.0	National Trophy
Fred West, Jr.	928.7	National Trophy
Dave S. Steinberg	886.0	National Trophy
Leo S. Sullivan	821.6	Air Trails Award
Palmer Fultz	818.9	National Medal
Leonard Damratouski	792.3	National Medal
Joseph A. Wojcik	791.2	National Medal
Alvin G. Rohrbaugh	784.7	National Medal
Harvey Prochnow	757.6	National Medal
R. Guttman	751.6	National Medal
Stanley Colson	739.6	National Medal
Robert DeBatty	725.9	National Medal
Robert A. Champine	716.5	National Medal
E. Gumell	692.0	National Medal
William G. Hammer	643.5	National Medal
Joe Limosani	631.6	National Medal
Donald A. Mertens	618.1	National Medal
J. Kahremanis	601.5	National Medal
Francis Heeb	583.8	National Medal

(Continued on page 66)

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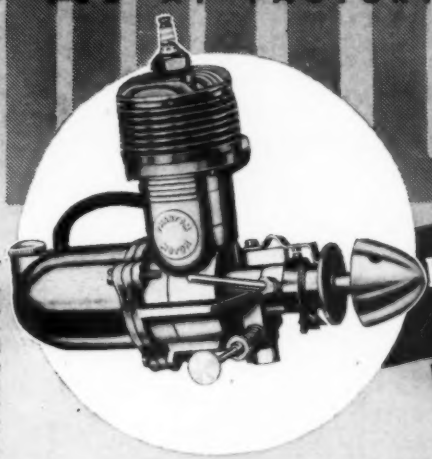

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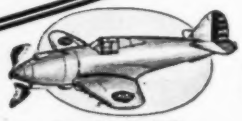

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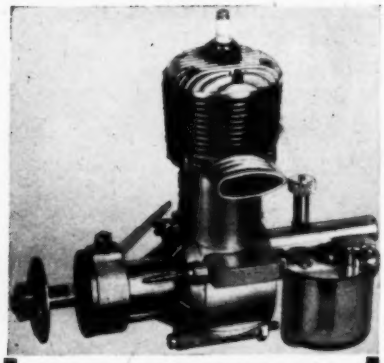

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If your dealer does not stock Forster motors, write the factory. Ask for folder "B".

FORSTER BROTHERS
1415 LAKE ST. MELROSE PARK, ILL.

Flash News

(Continued from page 40)

Frye, is turning over 24 Douglas D-3 airliners to the British for use as official transport planes not only in England but in Canadian and Australian military circles. Recently American Airlines turned over 20 of its Douglases and the British need 50 more.

Mrs. Floyd B. Odlum, who is known throughout the flying world as "Jackie" Cochrane, recently ferried a Lockheed Hudson bomber across the Atlantic, did a swell job, had plenty of fun and got paid $5,000. Actually, she was commandeered by the British for a special study course in England on use of women ferry pilots after which she returned to the U.S.A. to organize an emergency women ferry-pilot corps. It has been established, principally by Jacqueline Cochrane, but hundreds of others as well, that women make just as good plane pilots as men, particularly in the lonely job of ferrying a big bomber across the country. Then, they have no one to talk to and thus—concentration on the job!

The U.S. will soon be protected by a network of super-sensitive "ears" as the machinery of installing these elaborate sound detectors goes into action. Five hundred civilian radio experts have been enrolled by the War Department to supervise installation and operation of these spotters. It is claimed by this new device which was developed by the Signal Corps over a period of the past six years, enemy planes can be detected from 15 to 20 minutes in advance of their arrival. More men are needed and if you have had "ham" radio experience, are 21 to 36 years of age, unmarried, male citizens and can qualify, you will be given a course of training, commissioned a Second Lieutenant in the Signal Corps Reserve and ordered to immediate active duty. For exact details write to: United States Army Signal Corps, Fort Monmouth, New

(Continued on page 68)

Model Designing Simplified

(Continued from page 23)

block, which will rest on at the top of the fuselage. Two upright vertical balsa struts, 1/16" thick x 3/8" wide, are inserted between the two halves of the base block. When the wing is attached to the upper ends of these struts a permanent angle of incidence will be established; one that does not vary because of flexing of wire struts often used in other cases.

A single rib, 1/16" thick, cut to the proper outline, is mounted on the upper ends of the struts as indicated. This rib is notched so it can be glued snugly in place.

Now, in the wing front elevation, the two 1/8" bevelled center ribs can be drawn, allowing 1/16" between them to represent the wing mount rib which will fit between the two wing halves. When assembled the two half wings will be cemented to the wing mount rib at the correct angle.

In order to strengthen the wing spar, splices B1 and B2 should be inserted at the rear of each spar. Draw the patterns of these and indicate them also in the plan view. When drawing the layout for the wing mount assembly indicate the notches in the wing mount rib into which the splices will fit. The base block edges should be well rounded. Indicate this by cross hatching the part to cut away.

Isometric or perspective views of complicated assemblies are always helpful when included in the drawings, helping clarify the details the designer has in mind; so such drawings should be made of the wing assembly and the wing mount.

The two vertical struts of the mount insure their longitudinal rigidity; however, they will not be stiff enough to prevent the wing from bending laterally. Consequently to make it secure, wire struts should extend from the wing mount to the wing on each side. There should be two series of struts, one front and one rear; these may be made of a single wire run-

ning from one wing, down to and under the wing mount base block and up to the wing on the other side. The ends of these should be formed so they will attach rigidly to the wing. By bending the front struts backward and then upward, and the rear struts forward and upward, they may be cemented to the wing; the upward ends fitting into a 1/8" square balsa brace on the second rib from the center on each side. Inserting these in the isometric will give you an idea of the exact structure.

When the details have been worked out indicate the 1/8" brace for the struts in the wing plan view. Each brace should extend forward of the front spar and to the rear of the rear spar, glued to the rib. Draw in the center wing mount and struts in the wing front elevation, indicating a 1/8" square brace that will hold the upper strut ends. From this an accurate full size layout of the front and rear struts may be made. Include these on the drawing as shown, so that parts can be made from them of the correct measurement. You will note that the rear strut or brace is shorter than the front one because of the wing angle of incidence. These struts will pass through grooves cut in the under side of the base block and will be cemented in place.

The wing layouts are now complete but the designer should go over all the drawings carefully to make certain that they indicate the construction as planned.

The next step is to draw the plans for the stabilizer and rudder. They are to be reinforced across the grain with strips 1/8" wide and 1/32" thick. One strip is to be cemented parallel to the chord on the stabilizer upper surface and one directly under it on the lower side. Two strips are to be cemented to the rudder in like manner.

When these are indicated on your drawing your plans will be complete and you will be ready to build the model.

Construction

Start the construction by cutting out the body size from the plans given in the August issue, pages 22 and 24. Many builders assemble the parts as they are formed; however, it is advised that you cut out all the parts for the complete machine before starting your assembly, or at least all the parts for one unit of your airplane, such as the fuselage.

When this is done assemble the bulkheads, cementing the strips together as indicated (page 22, August). You will note that a block 3/16" square is cemented to the rear of bulkhead 7. The body sides are straight from bulkhead 2 to bulkhead 5, inclusive, so start the assembly by cementing bulkheads 2, 3, 4, 5 to one side of the fuselage. This may be done by placing the side on your bench and cementing the bulkheads in an upright position.

Before assembling the second side indicate with lines the exact positions of the respective bulkheads, then cement it in place to them. To hold the structure together while drying, insert pins at an angle through the sides into the bulkheads. The whole assembly then may be turned in an upright position, and the top may be cemented in place. When the alignment of the fuselage is correct pin it in place and set aside the structure until the cement is thoroughly dry.

While waiting to proceed with the body assembly the propeller may be carved out, or other parts prepared for assembly. Finish the fuselage when dry, by inserting the nose block. Make certain that the two vertical strips are glued to its rear edges. The fuselage top and sides should be cemented to this block and pinned rigidly in place until the cement dries.

Then insert bulkheads 2, 6, and 7. Before inserting 7 the rear motor hook should be cemented in place. This is forced through the front face of the bulkhead and then bent upward and around into a "U" and pushed forward again so it fits rigidly around the 3/16" balsa horizontal brace on the rear of the bulkhead.

Draw together the sides at the rear and cement the edges together from bulkhead 7 rearward to form the rear end of the fuselage. The fuselage may be completed by cementing the bottom side in place, shaping the rear end, with the "V" formed by the two sides just above the point where the tail skid is located on the side view drawing.

The stabilizer is cemented directly to the top of the fuselage and the fine vertically to the top of the stabilizer. Small 1/16" balsa fillets may be cemented on either side of the rudder or fin and to the stabilizer to give rigidity.

Next the landing gear may be shaped, as well as put in place and the whole assembly attached to the underside of the nose block.

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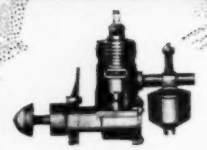

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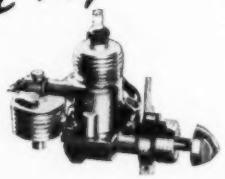

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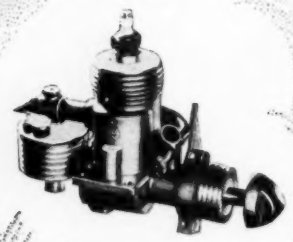

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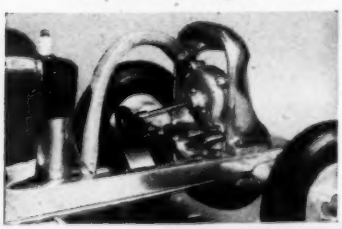

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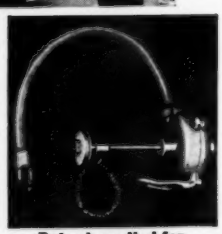

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A small balsa block is cemented over the landing gear wire and to the nose block, holding the assembly in place.

Cut the propeller from the correct size block, as indicated. First the concave face, following the diagonal lines, and then the convex side. After rounding the tips and sanding the blade smooth, a spinner should be fitted into place over the hub. Drill a hole from the center to take the propeller shaft. This should be made straight. The shaft first is inserted through the nose plug and bushing on its front face, then through the washer, propeller and spinner. After forming a loop at the front of the spinner the end of the wire should be pushed back into the spinner and cemented.

Wing

Each half of the wing should be made separately. Start by fitting the spars into the ribs to be located at the correct intervals, then fit in the leading and trailing edges; and, lastly, the curved wing tip pieces. When each half is completed assemble the wing mount and cement the two wing halves to the center rib of the mount, making certain that the dihedral angle is correct. Pin these halves together while drying.

When this is complete fit the splices B1 and B2 in the notches of the wing mount rib, cement it in place to the rib and spar.

Now you have the task of covering the wing with Jap tissue. One wing half should be covered at a time. Start with the upper surface; cutting out the paper and allowing 1/2" all around for trim. Cement the paper to the center rib, then to each successive rib from center to tip (one at a time), stretching the paper parallel with the spars as it is put in place. This is done by applying cement to each rib, one at a time, and pressing the paper down to it.

The paper is then cemented to the leading and trailing edges and to the top. Trim away the excessive paper around the wing, pressing down the loose edges. The underside then may be covered in like manner.

When both wing halves are complete fit the wire braces in place, cementing them firmly in the groove in the underside of the base block. When the whole assembly is completed and the cement thoroughly dry, the wing and mount may be held in place on the fuselage by rubber bands attached to the wing braces on one side, passing down and around the underside of the fuselage and attached to the wire braces on the other side. One end of the rubber is tied to the strut on one side and by means of a small hook, to which the rubber is attached, at the other side. There will be two rubber straps, one for the front struts and one for the rear.

The only remaining step is to insert the rubber motor. This should be composed of about eight strands of 1/8" flat rubber (four loops). When hooked to the rear hook, threaded through the fuselage and fastened to the propeller hook in front, your model is ready for flight.

Flying

Test it first by gliding, with the wing in a position shown in the side view drawing; the center of gravity should be in a position approximately under the center of the wing. Adjust the wing, moving it forward or backward to obtain a smooth, steady glide. If the model noses down too steeply move the wing slightly forward and try again; if it noses up or stalls, move the wing backward. When the glide is perfect you are ready for the first power flight. Wind it about fifty turns and launch it horizontally.

The flight may be regulated by moving the wing backward or forward as required. Be sure that your model flies perfectly with a few turns before giving it full power.

This little ship, though designed for a simple practice model, should give excellent performance because of its large propeller.

Air Youth of America

(Continued from page 21)

little specific information was available.

Some talk was heard that Mayor F. H. LaGuardia of New York City, in his capacity as the national director of civilian defense projects might give impetus to a program of teaching model aviation in the public schools, but again there was nothing definite to base this on.

Heard Among the Club Leaders

Jack Hohne, the spark plug and planner for the Newhio Flying Club, with headquarters at Dayton, stopped long enough from his duties covering the Nationals for his local papers to tell about the activities

FIRST at the NATIONALS

The PACER-C

Sal Taibi's 1941 gas model sensation

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With the highest time for any gas model at the 1941 Nationals, Sal Taibi, creator of the original Pacer, took first in the Class C open event with a total time of 24 minutes and 42 seconds. Individual flights were 1:22 (on a 7-second motor run) 13:15 and 10:05, establishing an average of 9:34. A Comet 35 was used in the record-making flights. Thus, against nearly 1,000 competitors representing the cream of gas modellers throughout the country, the PACER-C established itself as the TOP SHIP for 1941 . . . the champion of champions as actually proven on the contest field.

The PACER-C is a slightly larger version of the original Pacer marketed for Class B motors. This new champion is ideal for Comet 35, Cannon, Baby Cyclone or other small Class C motors and large Class B engines. It has a span of 60 inches, length of 45 inches, an area of four square feet, and weighs 32 ounces with Comet 35. Airfoil is a modified NACA 6409. Simple to build, easy to fly, and a real performer, the PACER-C is THE ship for you in 1941. Kit contains formed landing gear, Streamlite wheels, printed sheets, full-size plans, Silkspan covering. Highest quality materials used throughout. Be the first in your community to own this champion.

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- Rugged to an extreme . . . strength built in every line. Designed for Eastern flying where conditions are tougher and ships have to "take it".
- A beautiful model, winner of many prizes in display events. Sleek, streamlined, and efficient both on the show line and in the air.
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- Field proven by over 2,000 flights. Designed by the acknowledged Eastern Champ. A ship that will place YOU in the winner's column. The ship you'll have to build to compete in 1941.

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with floats on. This new combination model offers many flying thrills on land or water. Set, postpaid.....**$1.50**

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Set has 7" prop, turned motor front, wooden wheels and complete set of paints. Postpaid.....**$2.50**

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of his club. Jack feels that although there is a healthy growth in interest in model aviation, more should be done to encourage the new contestant and broaden the field. He would like to see greater attention paid to the flyer of rubber models. Hohne says that a possible shortage in materials for model motors makes logical a renewed interest in the rubber powered jobs, but looks for some sensational new development in rubber flying to make this possible.

One interesting development reported by Hohne among his club members is the formation of an experimental group interested solely in the research side of model aeronautics. Apparently this is sort of a post graduate stage, for those who have come up through the building and contest phase of the activity.

A Texas Delegation

Ed. Burgdorf, rolled in from Houston, driving a high toned new beach wagon with a delegation of Texas boys whose trip had been sponsored by Air Youth. Each of the boys had placed in one of the big state contests, winning a chance to make the trip to the Nationals. Each boy represented a Texas city: Herman Weber, Houston; W. L. Vavricka, San Antonio; James Kolb, Wichita Falls; Don Carney, Dallas; and Charles Atkinson, Graham.

All of the Texas boys were at the Nationals for the first time, and their record, in view of this, was a good one. Atkinson copped a third place in the Class C Gas Model Senior division winning the Wheat Memorial Trophy and a $50.00 cash award.

Steve Corbett Predicts Increased Activity

Steve Corbett, and his Detroit delegation of twenty-five demon builders were on hand and turned in the expected crack performance, although loosing out in the Megow team trophy competition to Gunnar Munnick's boys from the Boston Junior Aviation League.

Steve reported that this spring and summer has been the best contest season to date in Michigan. Steve says that not only has there been increased activity through the Michigan Model Airplane Council, but that the schools of Detroit and other cities are planning for even more model aircraft work in their fall activities.

Milwaukee Urges Revised Schedule

Howard Carlson and Eugene Kohls of the Milwaukee Model Aviation Council came in for the last few days of the contest. The MMAC is an outstanding worth-while project that has been sponsored by the civic leaders of Milwaukee in order to render assistance to all model aviation activity in the city.

One of the projects that the council is interested in is a rearrangement of the system of scheduling contests so that the nationals would come later in the season—say August or early September, thus permitting the state and regional contest wider leaway in arranging their own contests.

Harry Copeland, Mike Thomas and Frank Zaic, veteran leaders, were all engaged in the difficult job of judging the radio control event and had little to say for the record, but in their case actions were speaking louder than words.

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Build and Fly the Hawker "Hurricane"

(Continued from page 27)

the side keel after checking each former for correct alignment. When dry, remove this simple frame from the plan and attach remaining formers and side keel. Stringers are medium grade 1/16" sq. strips. As work progresses it will be necessary to cut many notches for the stringers; use a razor blade that has been broken to a sharp point for this operation. Once a stringer has been attached to one side always attach one to the other side's corresponding position to avoid pulling the structure out of line. Small pieces of hard 1/16" sheet cemented between stringers in the rear serve as the anchor for the rubber motor.

"Filling-in" the nose with balsa, as shown, effectively represents the metal cowl of the real ship. Use soft 1/16" and 3/32" stock, as required, and cut the individual pieces to fit snugly within the spaces between stringers and formers. When dry, cut and sand the entire nose to a smooth, accurate shape. The extreme front part of the nose is cut from 1/4" sheet that has been laminated together. Notice the nose block center is cut out to receive the removable nose plug. Cement the block to former 1 and then shape it to blend with the nose.

Wing

The wing is constructed in three parts; plans for the right wing and half the center section being given. Prepare complete plans for the center section and left wing so parts can be assembled over them. Two of each type ribs, with the exception of 1 and 1-B, are required; ribs are cut from 1/32" or 1/20" sheet. Notches for the various spars must be cut with accuracy to insure a neat job. Leading edges of the outer sections taper from 1/8" by 1/4" to 1/8" sq.; taper the trailing edges to correct crosssection before pinning them to place over the plans. Assembly the various parts directly on the plan, using pins to hold them in place until cement has hardened. The end ribs of each section should be slanted a small amount so the dihedral angle will be correct when they are joined. Tips are cut from 1/8" sheet and cemented to place. Trim the edges and tips to shape and then cement the three units solidly together with 1-7/8" dihedral at each tip.

Landing Gear

The landing gear, as used on this model, is sturdy yet easily reproduced. Check the various plans and photos for details. Two pieces of .040 wire are required for each strut and these are soldered together to form a strut as shown by the perspective; be sure to make a right and left unit. Attach

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1/16x3/16	18. 5c
1/16x1/4	15 for 5c
3/32 sq.	30. 5c
1/8 sq.	30 for 5c
1/8x3/16	12 for 5c
1/8x1/4	10 for 5c
3/16 sq.	8. 5c
1/4 sq.	6 for 5c
1/4x1/2	3 for 5c

18" Balsa Sheets

1/64x2	6 for 10c
1/32x2	9 for 10c
1/16x2	8 for 10c
3/32x2	7 for 10c
1/8x2	6 for 10c
3/16x2	3 for 8c
1/4x2	3 for 9c
1/2x2	2 for 11c

3" & 36" coat twice 18"; 3x36. 4 times

NOSE BLOCKS

1x2x1	1c
2x2x1	2c
2x2 1/4x1	3c
3x3x1	4c
3x3x2	7c
3x3x3	9c
5x5x2	17c

5 FOOT BALSA

Minimum 50c

1/8x3/16	10 25c
1/8x1/4	10 25c
3/16 sq.	8 25c
1/4 sq.	6 25c
1/4x1/2	3 25c
3/8 sq.	2 25c
1/2 sq.	2 25c

Sheets, 4 times 18". Double the above price for genuine aircraft SPRUCE

18" Balsa Planks

1/8x1/8	2 for 5c
1x1	1 for 5c
1x2	1 for 9c
2x2	1 for 16c
2x3	1 for 22c
2x6	1 for 48c
3x6	1 for 72c

Plastic Balsa
4 oz. 25c, 1 oz. 10c

PROP. BLOCKS

1/2x 3/4x 5	7—5c
1/2x 3/4x 6	6—5c
3/4x 1x 8	3—5c
3/4x1 1/4x10	2—5c
3/4x1 1/4x12	2c ea.
1x1 1/2x12	5c ea.
1x1 1/2x15	6c ea.

Plywood—1/16
1/8, 3/16, 1/4 40c ft.

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Banana Oil
1 oz. 5c, 1/2 pt. 30c
2 oz. 9c, pint 50c
Colored Dope
1 oz. 6c, 2 oz. 11c
1/2 pt. 35c, pt. 60c
MICROFILM
RUBBER LUBE
WOOD FILLER
LIQUID CELLULOID
1 oz. 9c 2 oz. 15c

Q. M. SILKSPAN
White, Red, Yellow, Orange, Blue
3 for 25c—"OO" —3c per sheet.
Gas Model Silk
H'vy qual. 45c yd.
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All col., doz. 19c
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Supersilk, wh. 5c
Bamboo Paper
White 5c, 6 for 25c
Colors, 2 for 15c

Trexler Wheels

1 1/4, 1 1/2	—40c
1 3/4, 2	—50c
2 1/4, 2 3/4	—60c
Gas Mod. 2 3/4	—$1
3-1.25	—3 1/2-1.50
4 1/2-1.75	

M&M WHEELS

1 1/4, 1 1/2, 1 3/4	—50c
2, 2 1/2	—60c
Gas. Mod. 2 3/4	—90c
Flyweight	.75c
New 3	$1.00
3 1/4 1.50, 3 1/2	2.75
4 1/2 2.75	—6" 4.00

PROPELLERS

Balsa	Paulo Ritz Wing	Gas
5"	4c- 7c	Mod.
6"	5c- 9c	8" 35c
7"	6c-12c	9" 35c
8"	7c-15c	10" 35c
9"	8c-19c	11" 35c
10"	9c-23c	12" 35c
12"	10c-28c	13" 35c
14"	12c-40c	14" 35c
15"	15c-50c	15" 35c
16"	16c-X	16" 35c
18"	25c-95c	18" 50c

RITZ Gumwood
8"-9"-10"-11" 15c
12"-13"-14" .15c
15"-16" .25c

GAS MODEL ACCESSORIES

Champion Spark Plugs 3/8 or 1/4 50c
Condensers—Metal, 15c Smith.....25c
Plugs & Jacks, Set of 2-35c val. 25c
Midget Tip Jacks 25c val. 2—15c
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Gas Funnel, Alum. strainer 25c
Spaghetti Tubing 1/16" 3 ft.—10c
Toggle Switch 50c val.....25c
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12" High Tension Leads—Best....14c
Booster Leads—50c Val.....35c
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Ball Bearing Washer 10c value.... 5c
Sandpaper, 12 sheets 5x5.....5c
Lilliput Lights—for display model, 3 lamps, wired, instruction sheet. Per set.....60c
Insignia 36—American, French, English, German, Squadron, in colors, gummed, per sheet..... 5c
Washers, pinhole, 1/8, 1/4, 2 doz. 3c
Prop Shafts, doz sm. 6c, large....10c
Nose Plugs for 5c, 1/2"—8, 3/4"—6, 1" 4.

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(3 in a set)
5/16, 8c 9/16 10c
11/16 12c per set

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Dural 1.95

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1/2x1/2 .....20c ft.
3/4x3/4 .....30c ft.

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ALUM. TUB'G per ft. / **BRASS TUB'G** per ft.

1/16 .....8c	...10c
3/32, 1/8 .10c	...15c
3/16, 1/4 .15c	...18c

Sheet Alum—ft.
.003 25c .010 35c

MUSIC WIRE

.014	6 ft. .2c
.020 .028	6 ft. .3c
.034 .040	6 ft. .6c
.049	6 ft. .8c
1/16"	3 ft. .5c
3/32"	5 ft. .15c
1/8"	5 ft. .20c

BROWN RUB'R

1/16 sq.	15 ft. 5c
1/4 flat	15 ft. 5c
3/16 flat	12 ft. 5c
Skein	225 ft. 1/16 50c, 1/8—60c, 3/16—85c

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Med. 8c, Lge. 8c
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Thrust Bearings
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1/2 doz. Lge. 7c

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1 1/4"	8c, 2" 12c
2 1/2"	14c, 3" 17c
4"	50c, 4 1/2" 65c

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2 1/2"	8c, 1 1/4" 4c
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the gear to place with thread wrappings about the 1/4" deep spar, and by sewing with a needle and thread right through the ribs and about the wire. Thoroughly cement thread bindings and all adjacent areas.

Wheels may be purchased or they can be made from laminated 1/8" sheet of the hardest variety. They are 3/8" wide. Cement washers to both sides of each wheel so they will turn freely and accurately.

Tail Surfaces

As is usually true of fighting planes, the tail surfaces are too small to insure stable model flights, so surfaces' proportions are enlarged a small amount. Both stabilizer and rudder are constructed in like manner and while only half the stabilizer is shown, it is constructed in one piece. First build complete frames using 1/16" sheet for the outlines, 1/16" x 1/8" strips for the spars, and 1/16" sq. pieces for the ribs. When these assemblies are dry, they are removed from the plans and 1/16" sq. strips are cemented to both sides of the ribs. These pieces are later cut to form the streamline rib shape. Trim and sand the frames to complete the construction.

Propeller

For best flight performance the model must be equipped with an efficient propeller. Select a hard block 8" x 1-1/2" x 1". Drill the tiny hole for the shaft and then cut the blank as shown. Cut the back face of the blades first; a bit of undercamber is desirable. The blades shape can be determined from the photos. Apply several coats of dope with light sanding between each to get a smooth finish. Shape the spinner from soft balsa and then notch it to fit accurately over the hub. A free-wheel device, if used, will improver the glide—hide it within the spinner. A washer should be cemented to the back of the prop to permit it to revolve freely. Color dope to a nice finish.

The removable nose plug is shown. A disc of 1/32" plywood forms the front portion while the back is laminations of 1/8" sheet balsa. Drill a small hole through the center and cement washers to both sides to fix the line of thrust. Bend the prop shaft from .040 music wire. Several washers should be placed between the prop and nose plug to reduce friction.

Covering

For finest appearance a smooth, attractive covering job is necessary. Before starting to cover, work over all the frame with fine sand paper and remove all flaws and roughness. On the fuselage only those members which run fore and aft should touch the covering, so lightly sand the formers to a slightly scalloped shape to aid in making a better job. Colored tissue is used for the covering, attached to the frame by light dope or banana oil. The model pictured is colored all red but ships at war are camouflaged in greens and browns.

Cover the fuselage first, using numerous small pieces to help prevent wrinkles; lap each piece neatly. The nose and similar wood parts are tissue covered, too. Use a separate piece of tissue for top and bottom of each section of the wing and tail surfaces; it is not necessary to attach the tissue to all the adjacent frame. Wing tips, etc. require individual pieces. Once all parts are covered lightly spray them with water to tighten the tissue, but do not apply any dope until later.

Now, to assemble the various parts: Fit the wing into the recess and cement it fast; if the structure has been reproduced with accuracy the angle of incidence will auto-

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matically be correct. Finish the undersection from wing to fuselage with pieces of 1/16" sq. Wing root pieces, as shown, are cut from 1/16" sheet and attached between wing and fuselage. Fillet pieces, to be cut from 1/32" sheet, are shown on the plan. The pattern indicates the fillets shape on the original model but since most planes will vary a little, paper patterns should be cut to fit your model before sheet balsa ones are cut. Once they have been cemented to place, the fillets are covered with colored tissue, as is the uncovered portion under the wing. The stabilizer is attached in position shown and at angle indicated. Off set the rudder a small amount so the model will glide to the right. Check and recheck tail surfaces for correct alignment. Tissue fillets are placed between the stabilizer and rudder. Any wrinkles in the covering should be moistened with water and permitted to dry before the entire model is given a coat of dope. If a small quantity of the same color dope as tissue is added to the clear dope, it will give an attractive finish.

There are numerous other details that should be added before the model can be considered complete. The cockpit enclosure is made from thin celluloid. Make paper patterns by the "cut and try" method before cutting from celluloid; be sure to avoid cement smears when attaching to place. The structural detail is made by doping thin strips of black tissue to the transparent enclosure. Two pieces of 1/8" rubber tubing (as used on electrical appliances, etc.) are slipped over the vertical portion of the landing gear wires. Wheels are colored and then held to place by washers soldered to the axles. The outer landing gear covers are cut from 1/32" sheet and then covered with colored tissue to match the plane. The red, white and blue British insignia on the original model was made from colored tissue. Control surface outlines, flaps, etc. are thin strips of black tissue doped to the covering. Make the small sub-rudder and tail wheel from sheet balsa. Exhaust stacks and other details found on photos of the real ship can be added without harming the model's flying ability.

Our model is powered by 10 strands (5 loops) of 1/8" flat, brown rubber. Hook the motor to the propeller shaft and then drop the other end through the fuselage. It may be necessary to remove a small portion of the rear covering to get the strands in position to be held by the removable bamboo pin. The model Hurricane is now ready for its initial flights.

Flying

Test the model over deep grass but if none is available make first flights R.O.G. with a few turns. In all probability the ship will be slightly tail heavy; if so, add a small amount of weight to the nose. As correct balance is obtained, increase the number of turns. Off-setting the thrust line to the right or left will aid in controlling the amount of circle in either direction. For maximum flight performance, stretch the rubber motor and wind with a mechanical winder.

The Hurricane is a trim little craft, light in weight and speedy in flight. It should make a worthwhile addition to any builder's collection. Happy landings!

The Flying "MUSTANG"

(Continued from page 21)

control systems and you have a picture of the fastest thing in the air: the North American XP-51 pursuit, our Plane on the Cover for September, 1941!

GENERAL ARRANGEMENT: The XP-51 is a single engine single seat fighter-monoplane featuring a liquid-cooled engine, completely retractable landing gear and enclosed pilot cockpit located amidship.

FUSELAGE: The fuselage is built up in two sections, a forward section housing the power plant and accessories and an aft section housing the pilot and carrying the tail units. Construction is semi-monocoque with pressed flange bulkheads, extruded stringers and stiffeners and cast and forged connecting blocks and fittings. Flush riveting is used throughout featuring the 100° countersink variety recently adopted by the Western Aircraft Standards division of the National Aircraft Standards Association. The forward fuselage section is closed tight by a fireproof solid bulkhead of corrosion-resistant stainless steel sheet riveted to the forward frame. The fuselage is oval in cross-section, which is carried in a uniform ratio to the rudder post at the rear.

WINGS: Although no exact data has been released by the War Department concerning the contour of this new secret laminar flow airfoil, it is known that its chief features are an extremely sharp entering or leading edge and the location of its maximum thickness is as far back as 50% of the chord. This fact has lent itself easily to North American's efficient type of single spar construction. This spar is built up in three sections, two outer panels and one center, and is of the sheet web riveted extruded angle and cap strip type. Vertical stiffeners of the bulb angle type are riveted at intervals along the web to insure strength in bending. The outer panel spar sections have no cap strip but consist simply of two extrusions riveted back to back and covered over with skin. The ribs are the pressed flange type, spaced at 15-inch intervals. Bulb angle lateral stringers are riveted into clips placed adjacent to the rib cutouts and the entire framework covered with flush riveted aluminum alloy aluminum coated Alclad sheet. The two wing tips are readily detachable, being attached by a series of Phillips head screws.

EMPENNAGE: The tail surfaces are the full cantilever single spar variety, the spar being the stabilizer's aft edge. The stabilizers are bolted into place and the skin fairing secured by flat-head screws. Both vertical and horizontal stabilizers have a light auxiliary spar running parallel to the leading edge, about 14 inches aft. Pressed flange ribs and bulb angle extrusions make up the framework over which the skin is attached with countersunk rivets. The rudder and elevators are all metal construction and fabric covered. They are statically balanced through use of lead weights bolted into the leading edge and covered with aluminum sheet. There is a small trimming tab, controllable from the cockpit while in flight, near the outer trailing edges of both the elevators and the rudder.

LANDING GEAR: The landing gear of the Model 73 is the fully retracting, hy-

draulically controlled type and consists of two single-leg full cantilever main landing gear units and a single-leg tail wheel unit. The main units are the air-oil pneudraulic design with a stroke of 9-1/2" inches. The brake and wheel assemblies are the magnesium drop-center type; tires are standard Air Corps smooth contour models. The brakes are hydraulically operated from a system independent of the main hydraulic units. A small double-action opposed type fluid reservoir and brake valve unit is located just aft of the firewall on the cockpit floor. This works by cables from the brake pedals which are actuated by pushing the upper portion of the rudder pedals. The pistons are returned to neutral by spring tension. A parking brake handle is located on the instrument panel, connected to this master brake cylinder by a single cable which drops a spring tension hook against the piston lugs locking the brakes. This is released by merely pressing the pedals. The wheels fold inward and rearward, the main landing gear strut rotating about an eccentrically mounted joint. Large metal plates seal the openings after retracting. These plates are in two pieces to allow for the shock struts extension after the load has been taken from them and still completely seal the recesses. The tail wheel acts much similarly as in the main landing gear and in unison with it except it retracts to the rear and two clam-shell doors attached to the under fuselage structure seal the opening. The shock strut is attached at its upper end to the retracting strut which is located within the fuselage in a horizontal position. An anti-shimmy device is provided.

CONTROL SURFACES: The ailerons are all metal construction, fabric covered and are provided with trimming tabs controllable from the cockpit. They are connected by a cable arrangement with the control stick in the cockpit. The flaps are the slotted type, of all metal construction. These extend between the ailerons to the fuselage and are hydraulically operated. They make be locked in any position and have a full travel of sixty degrees. The rudder and elevators are cable controlled and have a travel of fifteen degrees up and fifteen degrees down.

POWER PLANT: The North American XP-51 Pursuit is powered by a single Allison twelve-cylinder liquid-cooled Vee engine model V-1710-F3R. This engine, driving a Hamilton-Standard three bladed constant speed propeller, develops 880 horsepower at 2600 r.p.m. at sea level and 1150 hp. at 3000 r.p.m. at 12,000 feet. A two-speed supercharger, geared 8.8 and 10.4 to 1 crankshaft speed makes 1245 hp. available for takeoff and five minutes duration and 1160 hp. available at 16,450 feet. The oil tank is located aft, above the engine and has a capacity of 12.1 gallons. Oil is routed directly into the engine crankcase and, after being used, is directed through a cooler located on the engine's right-hand side. This cooler acquires air through a small retractable scoop on the lower right side of the engine cowl.

COOLING SYSTEM: Most unique feature of the XP-51 is its odd radiator installation for cooling the high temperature ethylene glycol coolant pumped through the Allison cylinder head jackets. Actually the

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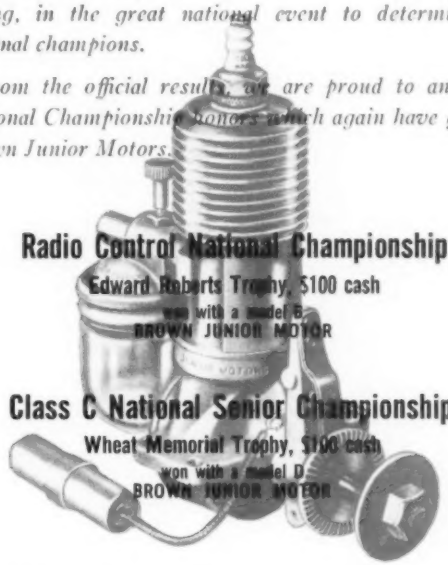

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radiator itself is installed complete within the fuselage but the ingress and egress of cooling air is made possible by installation of a generously streamlined housing located under the fuselage belly, just aft of the wing trailing edge. The air intake and exhaust portions of the housing consists of large scoops hinged to retract and extend as required. The radiator is the rectangular core type, mounted at a 45° angle (upper portion rearward) within the fuselage. Large ducted tunnels lead from the air intake scoop in the belly to the radiator and from the radiator to the exhaust portion of the fairing. A small header tank is mounted atop the engine just forward of the firewall, from this the cooled mixture is pumped into the engine banks. After leaving the engine it is hot and is pumped back and down to the radiator again. The header tank automatically supplies additional fluid.

FUEL SYSTEM: The fuel is carried completely within the wing center section in two large tanks, each with a capacity of 85 gallons, making a total fuel capacity of 170 U.S. gallons. The left tank has a reserve supply maintained by a standpipe and controlled by the main fuel cock of 35 gallons. This fuel cock is controlled from the cockpit and has four positions: Right, Left, Reserve and Off. The engine driven fuel pump is mounted on the rear of the engine accessory drive box; the rate of flow is controlled by a Type D-1 (Air Corps) fuel unit which comprises the fuel strainer, thermostatic expansion valve and pressure relief valve. One hundred octane gasoline is used throughout.

HYDRAULIC SYSTEM: The hydraulic system is the leak-type in that a constant, seal-tight valve port it not used, rather it is a leak-type which prevents a building up of pressures in excess of the normal one thousand pounds per square inch. The main hydraulic control unit is located on the left of the pilot and controls permit extension and retraction of the landing gear, tail gear, flaps, oil cooler scoop and radiator cooling scoop. For the landing gear an auxiliary mechanically operated system is installed in case of powerplant and consequent hydraulic pump and system failure. A small hydraulic fluid reservoir is located within the fuselage aft of the pilot with a total capacity of two gallons of hydraulic fluid.

ELECTRICAL SYSTEM: Power for the 12-volt, 6 cell battery is provided by an engine-driven generator located on back of the engine accessory drive box. Electrical energy is taken from the battery and led through the firewall to the main power panel located on the fuselage lower left side. From here it is taken to the instrument panel, radio dynamotor, tail lights, landing gear warning system, wing lights, signal lights and the armament control panel. Within the engine compartment it is routed to the engine magnetos; the complete system is the single-wire grounded type.

ARMAMENT: The North American XP-51 pursuit is undoubtedly the most heavily armed single-seater in the world today having a total of eight machine guns, two of which are of the heavy duty .50 caliber design. Each outer panel has three .30 caliber machine guns mounted close together just outboard the landing gear wells. All the guns are electrically operated and fired through use of solonoids and relays mounted adjacent to the trigger motors. The two fuselage guns are mounted between the V of the engine and are synchronized to fire through the propeller. Each .50 caliber gun has a total of 500 rounds ammunition while the wing guns carry 250 rounds in ammunition boxes hinged to their firing chambers. The case and link ejection chutes dispel the empty cartridges out into the air after firing.

COCKPIT: The pilot is located amidship, completely enclosed within a sliding hatch which moves forward to the open position. An emergency latch is located on both the panel left- and right-hand sides, to insure immediate exit in the event the regulation latch or hatch tracks become jammed. The seat has a travel of 18 inches and provides comportable space for the pilot's parachute and the new safety belt and shoulder straps recently adopted by the Air Corps. The instrument panel is completely equipped with flight, navigation and engine instruments. A regulation command set transmitter and receiver set are located on the fuselage right side.

The armament control panel is located on the lower right side of the instrument panel and provides for selective firing of either the left or right wing guns, nose guns or all guns in salvo. A regulation electric optical sight is mounted in the cockpit. This consists of a small beam of light projected from the bottom of the instrument panel to the reflector plate set at a 45° angle just inside the windshield. This throws a cross-hair and speed compensation chart into the pilot's line of vision, making aiming a simple expedient of tilting or lowering the nose.

The electrical control panel is located on the lower left side of the engine and powerplant panel and consists of rheostat control for cockpit lighting and toggle switch control for landing and navigation lights. In the upper right side of the panel is the engine priming pump used for cold starts. Oddly enough the engine is primed after the last landing at night in preparation for an early morning start, rather than attempting to start the cold engine in the morning.

On the auxiliary panel on the left of the cockpit are landing gear and flap position indicators as well as radiator air scoop position indicator. A surface control lock, for securing the ailerons, rudder and elevator when the plane is parked to prevent possible damage should a wind arise, is located between the pilot's feet on the cockpit floor.

Emergency equipment is provided just aft of the pilot's headrest within a special compartment and below this is the regular baggage compartment in which are stowed the airplane staking lugs, towing and jacking lugs, strut spanner wrench, schackle for lifting the airplane and a small tool kit for emergency engine repairs in the event of a forced landing.

Cockpit air is obtained from a small screened inlet in the left wing, mixed with hot air taken from the engine exhaust manifold, to the desired temperature by a control in the cockpit after which it is introduced into the cockpit floor through a special controllable duct.

SPECIFICATIONS: The North American XP-51 has a wing span of 37 feet,

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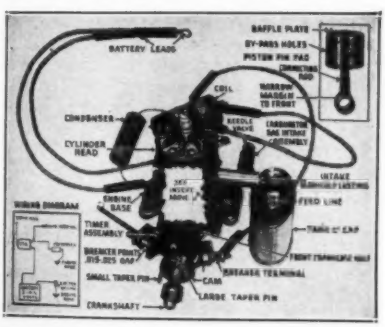

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5/16 inches and is 32 feet, 2-5/16 inches long. It has an overall height of 8 feet, 8 inches, the landing gear has a tread of 141 inches centerline to centerline. The total wing area including ailerons and flaps is 235.75 square feet giving it a wing loading of 32.6 pounds per square foot with its gross weight of 7708 pounds. Its empty weight is 5990 lbs., including the structure and installed equipment. The useful load of 1718 pounds is made up of 170 gallons of gasoline, 12.1 gallons of oil, 200 pounds of crew weight, ammunition, emergency equipment and removable items. The total aileron area is 16.6 square feet, vertical stabilizer area is 10.07 square feet, rudder area is 10.80 square feet, horizontal stabilizer area is 28.04 square feet and the total elevator area is 16.46 square feet. The propeller has a diameter of 126 inches.

PERFORMANCE: The Mustang, the Royal Air Force version of the Model NA-73, was thoroughly tested by Wing Commander Addams and according to recently released figures has a top speed at sea level of 386 miles per hour, 395 miles per hour at 11,500 feet and 412 miles per hour at 16,220 feet. It can climb to 39,600 feet and has a service ceiling of 37,500 feet. It lands at 72 miles per hours, has a range of 640 miles and a duration of two hours.

The Apache, a more modern version of the NA-73 and the model upon which the XP-51 is based, has a slightly higher supercharger ratio, a completely redesigned cooling system, and various internal refinements which lead to saving of some 245 pounds of empty weight.

Therefore, it is safe to assume that the XP-51 most certainly is the world's fastest single engine fighting plane if not the fastest airplane of any design. It is now in quantity production both for the Royal Air Force and the United States Army Air Corps and with the top-notch production system to be found in the newly enlarged Inglewood (Calif.) factory of North American Aviation Inc., this means that about six-a-day delivery schedules can be safely guaranteed.

Meteor On Wings

(Continued from page 11)

fuselage near the crutch, a wire is soldered from each timer point to the clips. When the ignition track is wired up the two wires that go to the timer are left free; when the motor unit is installed into the fuselage these wires are inserted into the Fahnstock clips.

The nose block is formed from a piece of balsa 2-3/4" x 5" x 6". The block is glued lightly to the fuselage and the outside shape is cut and sanded. The block is then removed from the fuselage and the cowling center is cut out as shown on the cowling detail on plate 2. The front of the cowling is recessed about 1/16"; 1/16" tubing is inserted in this space to give a radiator effect. The cowl is cut in half and the 1/16" pegs are inserted in place to properly hold the halves together. The windows are covered with celluloid and the fuselage is now ready for covering.

Wing

The wing is first scaled to full size, it will be noted the wing has no taper and the tips are perfect half circles that are drawn with a compass. The ribs are spaced 2" apart. The center ribs are made of 3/32" sheet to take the strain of the rubber when the wing is fastened to the fuselage.

It will be necessary to elevate the front wing spar about 1/16" from the board because of the airfoil undercamber. The ribs are then slipped onto the spar in their respective positions, then the leading and trailing edges are cemented in place. The tips, which are formed on the plans before the wing is built, are cemented in place. The top spar is cemented in place. After the wing is removed from the board the rear spar is glued in place.

Repeat this procedure for the other wing half. The wings are then sanded and joined at the correct dihedral angles, which is 3-3/4" at each tip. The final step is the sheet covering and cap stripping. The top is covered with 1/20" x 2" and the bottom with 1/20" x 3"; the cap strips are 1/20" x 3/16".

Stabilizer

The stabilizer is shaped same as the wing, in that it has no taper, round tips and also drawn with a compass. The stabilizer outlines are first constructed on the board. The leading edge is pinned to the board and the other parts of the outline, tips and trailing edge are raised off the board 1/16". With a pencil mark the edges where each rib fits on the leading and trailing edges, then remove the outline from the board. The ribs are now glued in position at the pencil marks. The top and bottom spars, 1/8" x 1/4" are cemented in place. The stabilizer

top and bottom is covered with 1/20" sheet balsa at the center.

Rudder

The rudder is built flat; the plan is self-explanatory. After the rudder is built it is glued to the stabilizer top and a fillet is formed with 1/16" sheet balsa.

Covering

The original Meteor was tissue covered; the body with blue tissue and then painted all blue, the wings and tails double covered with orange tissue cross-grained and then trimmed with blue paint. Give the model at least five coats of clear dope before painting.

Flying

Before flying the ship be sure there are no warps in the wings or tails. We have thoroughly test flown the Meteor and all adjustments are on the plans, but as no two models are built alike in respect to balancing, your plane should first be glided until a long flat glide is obtained. On the first flight it should be flown at half power with an engine run of about ten seconds. If the Meteor performs satisfactorily fly it again with a 20 second motor run, gradually increasing the power on each successive flight. Good Luck!

If you have any questions about the Meteor, write to Sal Taibi, in care of MODEL AIRPLANE NEWS, 551 Fifth Ave., New York City.

Academy of Model Aeronautics

(Continued from page 25)

and others gyrating first on one pontoon and then on the other, refusing to break water bonds, a weary toot from out on the river announced the arrival of the tired nautical delegation from the National Advisory Committee for Aeronautics testing laboratories located at Hampton, Virginia. It was learned later that several nautically minded model enthusiasts employed at N.A.C.A. pooled resources and bought a so-called power boat that required only a few essential patches and a new motor to make it seaworthy. In this corsair, "The Dolores," (means tears), these contestants navigated their aimless course to the hydro contest. The road map used for navigation purposes only extended the trip a few hours because of too many sta'board (right) turns at the wrong time. Undoubtedly this is the first (last?) time a power boat has been used for transporting aeromodelers directly to the contest site.

Though many model mishaps were due to the high wind, it was surprising how little damage resulted from upsets. Even numerous dunkings did no more than dampen the structural covering.

However, careful work was required to get single cylinder engines back into flying trim. After draining the engine of salt water the usual procedure was to spray a film of lubricating oil into the cylinder to restore the oil seal between piston and cylinder wall. The ignition wiring was carefully wiped clean and dried, spark plugs re-adjusted, short circuited batteries replaced, and with the few other mysterious minor adjustments

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that all contestants invariably make to their charges, the engines were again coaxed into running. Modelers like Sal Taibi, Dick "High Point Champ" Everett, Eastman N. Jacobs, Hewitt Phillips, Caldwell Johnson and others kept their ships flying by following this procedure. Many modelers had brought spare motors —just in case.

This is certainly one activity that calls for good substantial water-proofing. The standard economical one coat of airplane dope to keep fabric surfaces taut just won't stand up as a water repellant. At least three coats of medium consistency airplane dope should be used. Many experts recommend varnish as a water-proofing agent if full-fledged Rise-Off-Water activity is planned. It has been found that heavily doped models can be returned much more quickly to flying condition since the internal framework is not subjected to the soaking that results from leaks through poorly treated coverings.

In drying out the hydros, a great deal of attention was centered on preventing warps and eliminating twisted framework, especially if the model had been immersed for some time.

As for the number of pontoons to use —it is still any man's opinion. Three floats are still prevalent for rubber powered models though the two float installation for engine powered models is gaining favor. Currently the most successful installation is made of two large floats running the length of the fuselage with a well defined step on the bottom of each pontoon to break water suction quickly. There have been attempts to copy hull and sponson designs, similar to the Martin and Boeing clipper hulls, but as yet nothing has been proved one way or another as to the practicability of this full scale practice to R.O.W. model aircraft.

An excellent article to consult, containing seldom found information on pontoon designs, appeared in the October 1940 issue of Model Airplane News.

Whatever float design is used, remember that proper buoyancy is one of the primary objectives. There should be sufficient clearance between the propeller tips and the water to prevent the engine from being sprayed excessively. If partial to the two pontoon water gear, make sure they are not closely spaced and that there is at least several inches of propeller clearance. Tops of pontoons have been hacked away when flimsy float supports vibrated with screaming engine speeds—don't let it happen to your happy hydro.

Plan to join the fun brigade this year and participate in one of these R.O.W. contests. You will really get a thrill that won't wear off in a hurry. If any of the Academy R. O. W. sanctioned competitions for the near future are out of your reach, organize your own water carnival for more flying pleasure.

Late season R. O. W. meets include: **(July 27)** Capital District Aero Ass'n. Model Seaplane Record Trials, J. Paul Lusk, 204 Clinton St., Schenectady, N. Y.; **(July 27)** Atlantic Aero Engineers Sea Plane Contest, W. F. Roberts, 1115 Ponce de Leon Ave., N. E., Atlanta, Ga.; **(August 10)** Maple Lake 5th Annual Aquacade Model Hydro Contest, Carl A. Hopkins, 140 Thompson St., Clarksburg, W. Va.; and **(August 24)** Atlanta Aero Engineers Sea Plane Contest at Atlanta, Ga., with W. F. Roberts officiating.

Additional information may be secured from the Academy of Model Aeronautics, Willard Hotel, Washington, D. C.

If you are an unbeliever, an infidel, and don't believe that hydro model meets can give Rise-Off-Ground model aircraft events a run for the money: Take a day . . . any day . . . providing there isn't a volcano in action—or a tornado . . . mix with a body of water large enough to enable a hydro to take off without interference; add some gasoline, oil or ether (whichever you recommend) . . . stir well and pour into the mixture one million quarts of enthusiasm. This potion should be taken in a bathing suit, with a lunch, your family and all the neighbors . . . and . . . results are guaranteed!

Building the Rocketeer

(Continued from page 17)

that have been stripped of all superfluous trimmings. Rub some cement around the inside of the mouth of the rocket tube and pinch the tube to an elliptical shape; hold until dry. This will pinch the rockets and keep them from sliding in the tube and changing the plane's balance. Insert a rocket and slide it back and forth until the ship balances at the middle point of the wing. Glide the plane, remembering that due to the high wing loading it will glide quite fast. Since the balance of the plane is changed as the powder in the rocket burns, adjust for a slightly nose-heavy glide; the glide will flatten out as the powder is consumned. Warp the rudders to turn the plane in approximately 40 foot right circles.

Takeoffs should be made from a four foot cardboard runway set at an angle of about 30 degrees to the wind. Elevate the front edge of the runway about two inches and "clear the decks" for action. Set the plane on the runway, take two deep breaths, and light the rocket fuse. If adjustments are O.K. you will really see a spectacular performance. Study the first flight and make adjustments just as you would with a hand-launched glider. After a couple of trials you will be rewarded with the fastest climbing, flattest gliding model you ever built.

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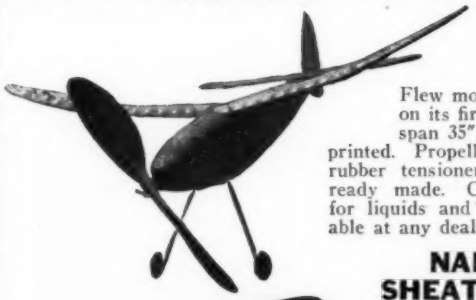

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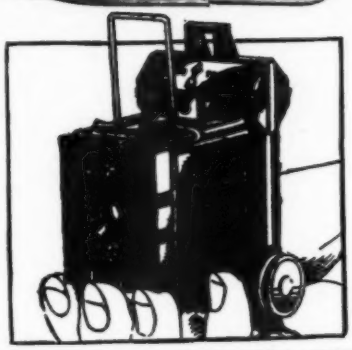

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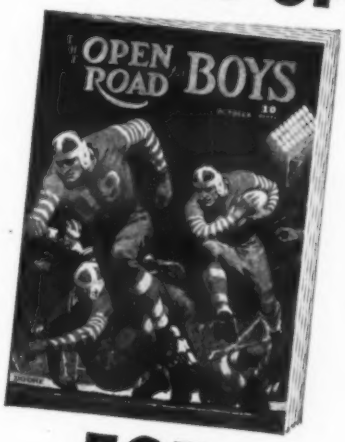

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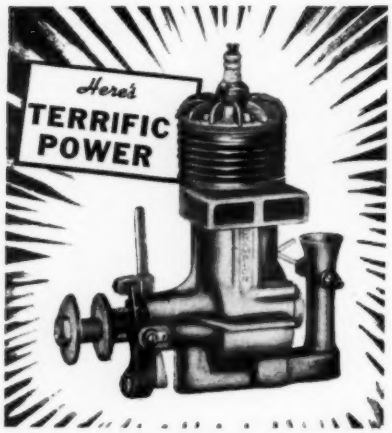

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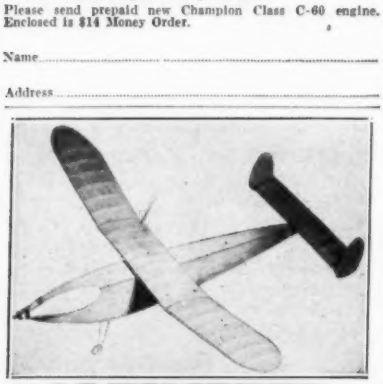

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Frontiers

(Continued from page 19)

add, however, that it was a little misty that day. But that is what the Germans will be up against when we get our "Mustangs" to the other side. Now we are anxious to see what Grumman's new twin-Allison powered XD-50 will do.

The first of Vultee's pursuits for Great Britain are rolling off the production line at Downey, California; we may see rapid delivery of these as Vultee has put plenty of force behind its production methods, to speed output. It now has a conveyor system, similar to that of automobile manufacturers, for trainers which carry the ships down the production line on rails attached to the roof of the plant; the parts are added as they roll down. Vultee will build its "Vengeance" dive-bomber for Great Britain at Nashville, and without a doubt the U.S. Air Corps will take a sizeable number. The dive-bombers will be allotted to the attack groups of the Air Corps and will bear an "A" designation. Several Army versions of the Douglas SRD-1 Navy dive-bombers have already been delivered to the Air Corps. The dive-bombers North American originally built for Siam have been taken over by the Air Corps and are known as A-27. This leaves a big gap between that and the Stearman twin-engined YA-21; it may be that some of the planes between those designations will be a new Beech, Vought-Sikorsky, Grumman or Brewster.

Curtiss' twin engine trainer has received the AT-11 designation. The Air Corps has released the following information on the Beechcraft AT-7:

"The airplane is an all-metal low-wing monoplane with retractable landing gear and twin rudders. It is powered with two Pratt & Whitney 9-cylinder 450 hp. engines, and carries a crew of five. This is the first training plane procured solely for training student navigators. It is equipped with a chart table, aperiodic compass and stabilized drift-sight for each of three students, and a celestial navigation dome for sextant readings."

Alas, the O-52s are rolling out. We waited a long while for those ships, ordered a few years ago in the first design competitions that started the present fever for high-speed aircraft. It was at a time when the Air Corps was getting disgusted with the idea of having super fast observation planes and were turning more towards the low-powered airplane to accompany troops. The O-52 is a more high-speed version of that latter type; it will perform liaison work with the ground men and also carry out mapping duties. The O-52 is built by Curtiss, carries a crew of two, is of high-wing design, single strut braced. Construction is all-metal with landing gear retracting into the fuselage sides. A spacious glass enclosure is provided, insuring plenty of visibility. In some respects the ship resembles the Curtiss high-wing monoplane fighter that was built a few years ago for the Navy. Thus Curtiss' heart-breaking experiments on that airplane have not been a lost cause.

Everything in aviation these days seems to have a military note to it . . . even sailplaning. The lightplane builder is also endeavoring to find a place in the scheme of things and claims that his lightplanes would be more practical than sailplanes for attack on the enemy. Those Piper Cubs recently sold in quantity to Canada will be called "Flitfires" and will receive their dose of military service. Aluminum shortage is going to hurt the lightplane manufacturer no end, especially Luscombe, who, incidentally, is building a new Menasco-powered twin engine ship.

Allison has reported that its Model 1710 engine has passed the 150 hour U.S. Army Air Corps test and will now deliver 1325 hp. instead of the former 1150. Douglas, Vega and Boeing have banded together to build the Boeing "Flying Fortresses." The new Republic AT-12 is, by the way, a two-place airplane and is mighty fast for a trainer.

Somebody just plugged up the key hole so we will call it "quits" until next month.

Remote Radio Control

(Continued from page 15)

mitter, then to receiver and control mechanism, the detailed theory, construction, installation and operation of this equipment will be discussed. The latest designs and hints of interest will be shown to beginner as well as advanced radio control technicians.

It might seem necessary that the complete system to be installed in a plane should be decided upon before proceeding to build, since there is a choice of systems and controls depending upon their size, weight and number of controls used. However, this only concerns the receiver and associated control apparatus mounted in the plane, the ground controller and transmitter will in most cases, remain the same, regardless of the type of receiver used. Receivers for various size planes and wing areas will be thoroughly considered later.

Centering attention on the ground controller, the first device constructed, it is important that its functions and operation be understood. Actually, all that is accomplished by a ground controller is making and breaking an electrical circuit, which activates or shuts off the transmitter. Thus any ordinary push button, switch or telegraph key serves the purpose. A telephone-type dial has been used and is essentially the same but also provides for making several contacts in rapid succession; this is desirable so that the plane's desired control position can be rapidly reached. The use of a stick control, making contacts as it is moved through different positions, is another scheme; but loses value as there is no association of "feel" involved here. (See Fig. 2).

It is desirable to employ a system of making and breaking the circuit whereby, after completion of the control movement, the operator can still tell (by his control instrument) the position of the plane's controls. Also desirable is allowance in the instrument's design for several control operations and addition of other controls which might be added for future use. The above mentioned systems fail to fulfill com-

bined requirements.

A device has been developed that seems ideally suitable, since it fills desirable specifications and performs additional functions when used with receivers of an advanced nature. Because it is the joining control unit or conjunction with the plane, it has been technically termed "Conjulator," and hereafter will be referred to by that name. The conjulator consists of an electrical hookup connected to the transmitter in the power supply circuit, applying power to the transmitter each time the control switch is operated. There are small, colored, pilot-light bulbs arranged across the panel, each representing a different control position, such as right rudder, left rudder, advance motor, and so forth. The light that is lit indicates the position of that control in the plane. This gives the operator a visual indication of the controls and he need not rely on memory. Synchronization between plane and ground occurs because of a predetermined sequence of circuits, but does not cause contacts to act in sequence because of a time delay circuit in the receiver, permitting selection of any desired control.

The conjulator can be constructed in three different types: Manually operated, spring or motor driven, and electronic.

The manually operated type is primarily useful where dual receivers and transmitters are used. It is operated by sliding an arm over contacts, until desired contact is reached; each contact representing a control position. The left row of contacts can be used for rudder positions, for example, and the right set for motor speed positions.

The spring or motor driven type (April, 1941 issue of MODEL AIRPLANE NEWS) is operated by depressing a key which releases a spring motor, turning a contact disk until the light bulb, indicating the control desired, is reached. This type of controller is extremely effective, but requires skill in building and is sensitive to operate.

The electronic type conjulator controller, which is the latest design, offers the best solution to automatic control and flexibility problems. It is operated by throwing a switch which simultaneously closes the transmitter circuit and a self-contained battery circuit which operates a stepping relay. This stepping relay, operating on a ratchet principle, closes the light bulb circuits in rotation, by means of which it is possible to keep track of the plane's control position. The standard circuit hookup is shown in Fig. 3A.

To construct the electronic controller secure or build a portable case into which you install the device. The one in the photograph measures 10-1/2" across, 9-1/2" wide, and 5" deep, with a small compartment 2" by 10" for carrying connecting cables. All parts are mounted directly on the panel, except for the four small 1.5 volt dry cells, which are strapped to the bottom of the case. The panel layout is shown in Fig. 4.

Tempered masonite has been used as the panel material.

The indication bulbs are 6.3 volt radio pilot bulbs, which glow through colored glass jewels. These jewel lights can be purchased reasonably, complete with lamp socket assemblies. Since the color is soon associated with a control, the ingenious constructor who wishes to retain this effect but not purchase unessential parts,

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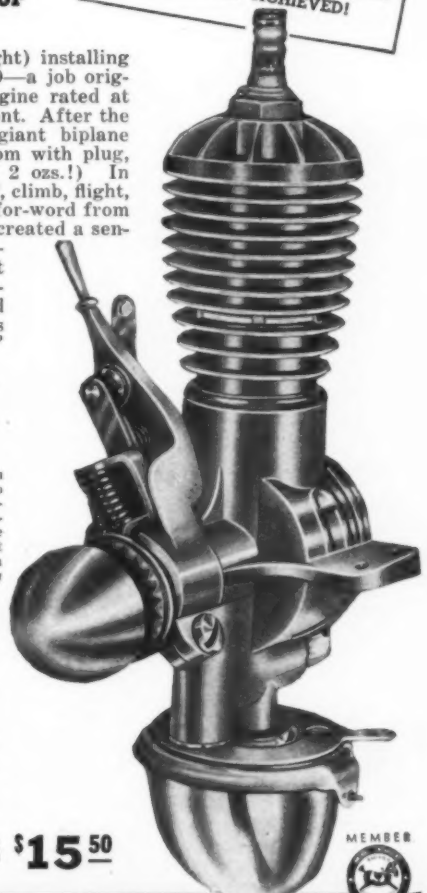

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might substitute cellophane over the bulbs to replace the jewel light.

The stepping relay can be purchased complete, according to following specifications: 6 volt direct current coil, twelve to sixteen contacts (or more in multiples of four), continuously recycling. A stepping relay can be made from a number of types of circuit relays, which are found in most pin-ball machines. The relay contacts are connected in accordance with the number of control positions in the plane. Starting with only rudder control and using a ratchet escapement or electro-magnets to move the tab, four lights are used on the conjulator; namely, one each for neutral rudder, right rudder, neutral rudder and left rudder. This requires that every fourth contact be connected together. If eight movements are used, every eighth contact is connected together. In wiring use push back or other hookup wire and naturally, solder all connections.

Four 1.5 volt dry cells are required to operate the conjulator. These dry cells may be of any size but Burgess number 4FH or Merit No. 4 cells are recommended because of their compactness and high current capacity. If a storage battery is part of the regular gear it may be used to operate the conjulator and internal cells dispensed with.

The conjulator described can be built with a slightly more elaborate hookup in order to use it for measuring the transmitter current input, tuning the receiver and as a booster supply for starting the engine; all besides acting as automatic ground controller during the flight. The only extra parts needed are an O-1 millimeter, double-pole, double-throw switch, meter shunt resistors and several extra terminals. Fig. 3B shows the complete circuit arrangement.

Once ready for a test, switch the toggle switch to the "on" position and one of the bulbs should light. (If there is no light immediately, disconnect the dry cells and carefully check the wiring, until the mistake is found). Now operate the control switch and the next light should glow. Depress it several times and note the rapid succession with which you get to the desired control. With the ultra short-wave transmitter to be described and built next month, the transmitter switch portion of the conjulator will be tested.

Materials for Building Conjulator

4—one and one-half volt dry cells (see text)
1—stepping relay (see text)
1—double pole single throw switch
1—single pole single throw switch
4—6.3 volt pilot bulbs
4—jewel light sockets
2—binding posts

Extra Parts for Building Multi-Purpose Conjulator

1—Oto one milliampere meter
1—shunt resistor for above milliameter to read 0 to 5 milliamperes full scale (R_1 in diagram)
1—shunt resistor for milliameter to read 0 to 50 milliamperes full scale (R_2 in diagram
4—binding posts
1—double pole double throw switch

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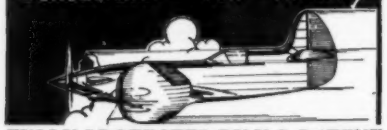
Sensational - New - Thrilling



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SHARK P-60 "G" LINE MODELS

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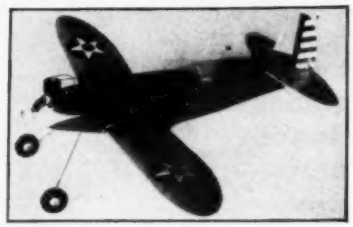

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Build and Fly one of these thrilling new ARMY TYPE PURSUIT "G" Line Speed Ships. All Kits are unusually complete throughout.
Complete Shark P-60 Kits
Rubber Power Kit Complete $1.95 Postage 20c
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COMPLETE KIT $1.98 Postage 20c
The new BABY SHARK, Super Streamlined Speed Ship, is designed for all Class A and B motors. This snappy little job flies at tremendous speeds of from 50 to 75 M.P.H.
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Dealers Write For Special Discounts. Folders 5c
VICTOR STANZEL & CO.
SCHULENBURG Dept. M. TEXAS

1941 Nationals Results and Award List

(Continued from page 46)

James R. Stimson	582.8	National Medal
H. Schoenky	567.7	National Medal
Marty Zugel	565.6	National Medal
N. Faget	557.6	National Medal
Dale W. Root	532.5	National Medal
Bob Wolfston	525.3	National Medal
Frank Schnagel	505.7	National Medal
A. Debusschere	500.5	National Medal

CLASS "B" GAS—JUNIOR DIVISION

Edward A. Vargo	574.9	Chicago Park District and Chicago Times Perpetual Trophy
Gordon Morez	481.0	Model Craftsman Trophy
Allan Mavis	452.5	National Trophy
Edward Spaulding	426.9	National Medal
Frank Ball, Jr.	409.9	National Medal
Samuel Scuro	405.9	National Medal
Robert Boltz	389.0	National Medal
Walter Waechter	385.0	National Medal
Henry Mester	363.0	National Medal
Creighton Trapp	333.2	National Medal

"B" GAS EVENT—SENIOR DIVISION

Bill Willmarth	511.1	National Medal
P. R. Donahue	499.8	National Medal
Fred Vance, Jr.	485.8	National Medal
Robert C. Hoffman	461.2	National Medal
Robert Cooper	450.	National Medal
Herman Weber	448.7	National Medal
Jack A. Pflug	447.1	National Medal
Rolland Dexter	428.2	National Medal
Arthur Peacock	425.1	National Medal
Bill Redeker	422.0	National Medal

CLASS "B" GAS—OPEN DIVISION

Gibson, W. A.	900.3	Gar Wood Perpetual and Miniature
Girten, Karl, Jr.	773.4	Forster Trophy
Andrews, Herbert	746.1	National Trophy
Halbert, Wm. C.	743	National Trophy
Ellis, Murray	719.2	National Trophy
Reynolds, George	712.4	National Medal
Malone, J.	682.8	National Medal
Kester, Gene	656.5	National Medal
Mendell, R.	655.9	National Medal
Goldberg, Carl	637.0	National Medal
Taibi, Sal	606.5	National Medal
Kemp, Eugene C.	606.2	National Medal
Benson, Harry	583.6	National Medal
Burley, Robert	559.3	National Medal
Nagle, Lawrence B.	555.0	National Medal

OUTDOOR STICK—JUNIOR DIVISION

MacCready, Paul B., Jr.	907.2	Gorr Trophy
Jasion, D.	602.1	Aviation Post American Legion Trophy
Robertson, Gordon H.	475.0	National Trophy
Kreigh, Keith	459.8	National Trophy
Thomas, John	438.4	National Medal
Holmes, Warren	437.9	National Medal
Huizenga, Bob	411.8	National Medal
Johnson, C. Robert	397.6	National Medal
Blatter, Albert	382.2	National Medal
Bates, Robert	369.6	National Medal
Wyckoff, Roger	363.3	National Medal
Melichas, Melvin	354.8	National Medal

CLASS "A" GAS—OPEN DIVISION

Gibson, W. A.	1297.2	Modelcraft Trophy and Miniature
Hall, Franklin M.	1246.8	Flo-Torque Trophy
Dossett, Geo. Y.	908.3	National Trophy
Lain, Wm. H., Jr.	753.9	National Trophy
Millice, Chas. Wm.	724.6	National Medal
Hard, Leslie	692.8	National Medal
Goldberg, Carl	687.4	National Medal
Burley, Milton C.	677.6	National Medal
Furlong, Jerome	639.3	National Medal
Findra, John	506.2	National Medal

OUTDOOR STICK—OPEN DIVISION

Lamb, Edward Day	1002.0	United Airlines Trophy and Brewster Aircraft Award $25.00
Everett, Dick	949.2	B. J. Kesl Co. Trophy
Lagerstedt, Douglas T.	839.5	National Trophy
Vollrath, Frank	729.5	National Trophy
Johnson, Caldwell C.	602.7	National Trophy
Lanzo, Chester D.	593.2	National Medal
Renning, Conrad B.	589.1	National Medal
Vermock, J.	580.7	National Medal
Struck, Henry	515.6	National Medal
Wilkinson, C. M.	558.6	National Medal
Hollinger, Charles E.	532.9	National Medal
Dick, Korda	525.4	National Medal
Berens, Irvin N.	496.9	National Medal
Swort, Edmund B.	495.8	National Medal
Mertens, Donald A.	485	National Medal

BEST FINISH EVENT

Allen Vopal		Berryloid Trophy
Jose, Salas L.		Berryloid Trophy
Bleitner, Charles		National Trophy
GregoryKohn		National Medal
James Noonan		National Medal
Melvin J. Heines		National Medal

OUTDOOR STICK—SENIOR DIVISION

Smith, Raymond Foster	1184.5	Mulvihill Trophy C. W. Rogers Trophy
Sass, George	752.3	Braniff Airways Trophy
Stimek, John	730.0	National Trophy
Lamb, Chas. A.	713.3	National Trophy
Steinberg, Wm.	680.6	National Trophy
Champino, Robert A.	677.5	National Trophy
Huguelet, Milton	669.6	National Medal
Collins, Chas.	657	National Medal

Schnagl, Frank	608.9	National Medal
Schmitz, Howard	697.0	National Medal
Hammer, Wm. G.	584.9	National Medal
Hawkins, Robert H.	562.3	National Medal
Kaufmann, Robert J.	559.5	National Medal
Debusschere, A.	556.3	National Medal
West, Fred, Jr.	556	National Medal
Schelde, Henry Jr.	549.3	National Medal
Kumlacky, Robert R.	538	National Medal
Gibbs, Robert	537.9	National Medal
Pinney, Jack	537.5	National Medal
Czyryk, Chester	535.0	National Medal
Shapiro, Henry	529.5	National Medal
DeThorn, Wm. Hugh	526.4	National Medal
Olson, Robert	523.1	National Medal
Blanchard, W.	516.2	National Medal
Frankenberg, Gilbert	512.5	National Medal
Deshich, Dushan	490.0	National Medal
Capan, F.	489.9	National Medal
Damratouski, Leonard	488.	National Medal
Heeb, Francis	484.5	National Medal
DeBatty, Robert	484.1	National Medal

CLASS "A" GAS—SENIOR DIVISION

Findra, John L.	668.4	Comet Perpetual and Miniature
Kehl, Jerome	627.9	Atom-Microdyne Trophy
Roberts, Charles	610.7	National Trophy
Gerpheide, Geo. DeLano	552.5	National Trophy
Folz, Robert	513.4	National Trophy
Wassem, Max	486.8	National Trophy
Stokes, Doug.	447.1	Air Trails Award
Fotion, Harold Wm.	439.4	National Medal
Olson, O. L.	430.1	National Medal
Girten, Karl, Jr.	430.1	National Medal
Schulte, Harry, Jr.	419.0	National Medal
Lutz, Bill	408.3	National Medal
Weber, Herman	404.0	National Medal
Leo Shulman	394.2	National Medal
Simmons, Russell	385.0	National Medal

INDOOR CABIN—JUNIOR DIVISION

Sandborg, Robert	596.5	Guillow Trophy
Blatter, Albert	566.0	Aviation Writers' Trophy
MacReady, Paul, Jr.	459.3	National Trophy
Jasion, Dick	397.5	National Medal
Green, Pat	283.0	National Medal
Northmore, James	256.6	National Medal
Krupp, Donald	193.3	

CLASS A GAS—JUNIOR DIVISION

Repenning, Wm.	819.2	Champion Sparkplug Trophy
Callaway, S.	693.3	National Trophy
Morris, Gilbert	616.0	National Trophy
Anderson, Thos. Jr.	440.4	National Medal
Lauritsen, Chas.	435.8	National Medal
Northmore, J.	426.6	National Medal

INDOOR CABIN—OPEN DIVISION

Cain, Gordon E.	847.2	Bloomingdale & Miniature Chgo. & Southern Airlines
Struck, Henry	837.6	Jack Vilas Trophy
Cahill, Jim	797.8	National Trophy
Matulis, J. P.	793.7	National Trophy
Werle, Chas. W.	770.6	National Medal
Hartung, Walter	736.4	National Medal
Janke, Curtis D.	711.0	National Medal
Lanzo, Chester D.	624.0	National Medal

INDOOR CABIN—SENIOR DIVISION

Stanwick, Stanley	827.3	Eddie Rickenbacker Trophy
De Batty, Robert	712.4	National Trophy
Jasion, Art	701.0	National Trophy
Lerman, Harry	679.0	National Trophy
Keshishian, Harry	647.8	Air Trails Award
Heeb, Francis	639.0	National Medal
Lee, Henry A.	630.0	National Medal
Call, David L.	622.0	National Medal
Sass, George	606.4	National Medal
Morris, James	583.2	National Medal

INDOOR STICK—SENIOR DIVISION

Stanwick, Stanley W.	1127.0	Stout Perpetual Trophy Burgess Trophy Standard Oil Award—$15.00
Lerman, Harry	936.6	Early Bird's Trophy Standard Oil Award—$10.00
Rohrbaugh, Alvin Geo.	902.9	National Trophy
Morris, Jas.	880.8	National Trophy
Call, David Lane	877.6	National Medal
Keshishian, Harry	864.0	National Medal
Miller, Donald F.	851.0	National Medal
Curth, Otto	834.8	National Medal
Gibbs, Robert	832.6	National Medal
Lee, Henry Armistead	822.0	National Medal
Brown, Ralph W.	820.3	National Medal
Palmer, David	816.4	National Medal
Feldmeier, Wilmer	809.1	National Medal
Cole, Henry A.	777.9	National Medal
Sullivan, Leo S.	772.2	National Medal

INDOOR STICK—OPEN DIVISION

Andrews, Merrick S.	1104.7	Flying Aces Trophy Springfield Trophy
Matulis, Jos. P., Jr.	1029.6	Greater Chicago Chapter N.A.A. Trophy
Cahill, Jim	1023.1	National Trophy
Janke, Curtis D.	1012.5	National Trophy
Cain, Gordon E.	999.3	National Medal
Gough, Wm. E., Jr.	803.0	National Medal
Naudzius, Edward	799.1	National Medal
Cahill, Robert	796.4	National Medal

INDOOR STICK—JUNIOR DIVISION

Sandberg, Robert	745.9	Croil Hunter Trophy
Jasion, Dick	593.1	American Airlines Trophy
Cadieux, Raymond	572.4	National Trophy
Vargo, Louis	530.8	National Medal
Dorfett, Charles	529.4	National Medal
Thomas, John	493.2	National Medal

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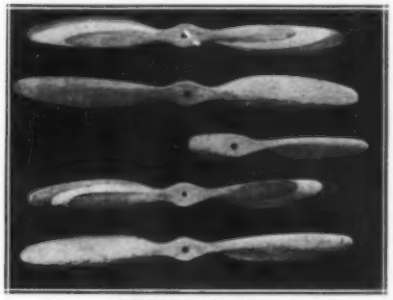

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Properly balanced, fine for U control 4", 4½", 5", 5½". Each 35c.

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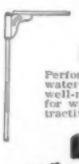
Give Name of Engine (By mail, add 5c)



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Flash News

(Continued from page 48)

Jersey.

The Navy Department has received an appropriation of $482,046,600 to increase Naval Aviation to a force of 10,400 planes (compared with the 3342 now on hand and the 4822 contracted for). Of the 2236 new planes now made available, 516 will be giant patrol bombers with a 3500 miles range and bomb load of "many" tons, including torpedoes. Present plans for the new Army Air Force are set at a force of 46,000 airplanes, making a grand U.S. total of 56,400 airplanes, twice that of the present Luftwaffe by July 1st, 1942.

Priorities for model builders! That is the word that was recently released when it became apparent that shortages of aluminum, bronze, rubber, thread and balsa wood were becoming intense. Therefore, leaders in the model field, acknowledged the training ground for full-scale production, are conferring with N.A.A.'s model division, the Academy of Model Aeronautics, concerning the possibility of establishing priorities for these materials vital to the model building trade.

A Douglas B-18 twin engine bomber crashed against a mountain near Evanston, Wyoming, killing its crew of six. The sixth bomber to crash in this region in recent years, the plane set out on a routine tactical flight from Salt Lake City and was unreported for 24 hours. United Airline pilots, warned to be on the lookout, spotted the badly damaged craft in the hills and rescue workers confirmed the death of the six, headed by Captain David N. Mothrwell, ship's pilot.

Change of station orders by the Air Corps Headquarters in Washington has sent Headquarters Squadron, First Bombardment Wing from March Field, Riverside, to the new air base at Tucson. Oldest squadron on pre-war March Field, the unit is headed by Brig. Gen. Frank D. Lackland. The new wing will be designated as First Bombardment Wing, Fourth Air Force, and will have jurisdiction over the 41st Bombardment Group, 6th Reconnaissance Squadron, 19th Bombardment Group and 38th Reconnaissance Squadron, all of whom are now at the new base. Other groups leaving March Field are the 30th Bombardment Group to New Orleans, and 33rd Q.M. Regiment (anti-aircraft).

Holding their precision in the face of a blinding lightning and rain storm, three Marine Corps pilots flying three single-seat Grumman F3F-1 fighters flew into the face of a vertical crag on the west side of Mount Haleakala, extinct volcano on Maui Island, and lost their lives. Dead were 1st Lieut. W. M. Ferris, 2nd Lt. W. Hagemann, Jr., and 2nd Lt. C. H. Story.

Mr. John Q. Public will be amazed when the actual figures are released concerning the number of Army and Navy flying officers now being sent for tours of observation and technical study duties with the Royal Air Force and base establishments in England. Large numbers of Air Corps Captains and Majors and Naval Captains and Commanders are shuttling back and forth to England, each returning with valuable new slants on old ways of doing things and even more valuable new tricks and gadgets to arm and safely defend a nation. Recently 72 Air Corps officers departed on a single clipper. Navy officers are flown by four-motored Navy flying boats.

Floyd Bennet Field will soon be the greatest Naval Air Base in the world, according to announcements of Naval officials to spend more than $50,000,000 on the base. Basic duties will be that of a base for flying and patrol boats which it is now serving as the neutrality patrol headquarters for air.

Lighter-than-air bases will soon be in operation at San Francisco, Elizabeth, New Jersey and South Weymouth, Massachusetts. Although plans have definitely been shelved for construction in the very near future of rigid dirigibles of the Akron and Macon type, more than a hundred small, semi-rigid "blimps" will soon be in use by both Army and Navy aviation groups. Spotting, a great cruising range and ability to hover in a single spot for interminable periods are their chief advantages.

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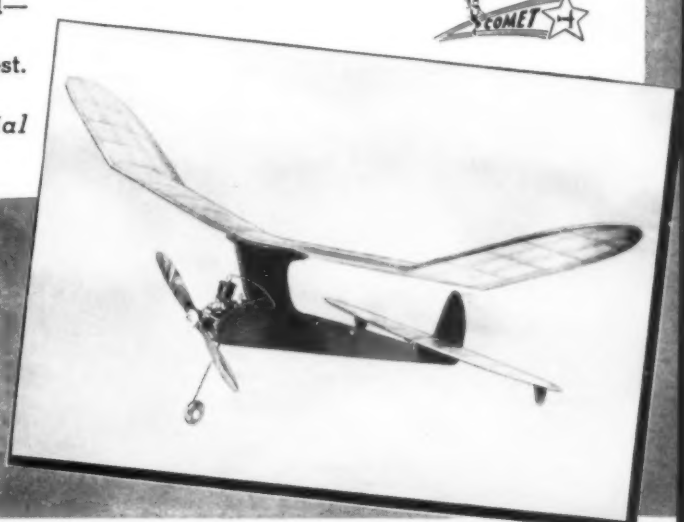
	Class B—Junior	Eddie Vargo	*Zipper*
	Class B—Senior	P. W. Klintworth	*Zipper*
	Class B—Open	W. A. Gibson	*Zipper*
	Class A—Open	W. A. Gibson	*Zipper*
Second Places	Class C—Junior	Charles Alsdorf	*Zipper*
	Class C—Senior	Bud DeBolt	*Zipper*
	Class C—Open	Ray Acord	*Sailplane*
	Class B—Open	Karl Girten Jr.	*Zipper & Interceptor*
Third Places	Class C—Open	Herbert P. Andrews	*Sailplane*
	Class B—Senior	Bill Lutz	*Interceptor*
	Class B—Open	Herbert P. Andrews	*Zipper*

- Longest single flight any gas event: Ray Acord—Sailplane—19 minutes 53.6 seconds.
- Sailplane also placed in Radio Control Contest. Ship weighed 4 lbs. 14 oz. complete.
- *Above information obtained from official contest records.*



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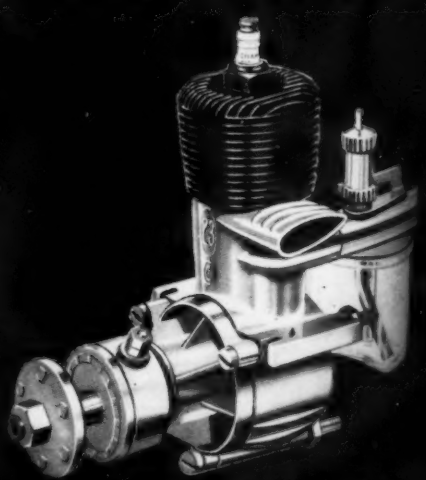

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